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CONTAMINATION ASSESSMENT REPORT FOR SITE 362 CSS PANAMA CITY FL  
12/1/1996  
BROWN AND ROOT ENVIRONMENTAL

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**FILE**

**Contamination Assessment Report**  
for  
**Site 362**

REC'D JAN 06 1997

**Coastal Systems Station**  
Panama City, Florida



**Southern Division**  
**Naval Facilities Engineering Command**  
Contract Number N62467-94-D-0888  
Contract Task Order 0008

December 1996

**CONTAMINATION ASSESSMENT REPORT  
FOR SITE 362**

**COASTAL SYSTEMS STATION  
PANAMA CITY, FLORIDA**

**Submitted to:  
Southern Division  
Naval Facilities Engineering Command  
2155 Eagle Drive  
North Charleston, South Carolina 29406**

**Submitted by:  
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**CONTRACT NUMBER N62467-94-D-0888  
CONTRACT TASK ORDER 0008**

**December 1996**

**PREPARED BY:**

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**EXECUTIVE SUMMARY**  
**of**  
**CONTAMINATION ASSESSMENT for**  
**Coastal Systems Station Site 362**  
**Panama City, Florida**  
**Facility ID No. 038518667**

Brown & Root Environmental (B&R Environmental) has completed a Contamination Assessment (CA) at the above-referenced facility in accordance with the requirements of Chapter 62-770, Florida Administrative Code (FAC). The assessment report was submitted to the Florida Department of Environmental Protection for approval.

B&R Environmental performed the following tasks during the CA:

- Reviewed available Navy documents to identify potential sources and receptors for petroleum hydrocarbons in the vicinity, to evaluate private potable wells in a 0.25-mile radius and public supply water supply wells within 0.50-mile radius, and to locate nearby surface water bodies and to determine surface hydrology and drainage;
- Reviewed Closure Assessment and Initial Remedial Action activities completed for the site's fuel distribution system upgrade, to determine boring locations for a soil vapor assessment;
- Conducted site survey to identify utilities and to construct a site plan;
- Performed excavation of four soil borings for organic vapor analysis;
- Collected groundwater samples from existing site compliance wells for analysis of the constituents included in the Gasoline Analytical Group.

The results of the CA revealed no "excessively contaminated" soil at the site, as defined by Chapter 62-770.200 FAC, or hydrocarbon impacted groundwater which exceeds regulatory guidelines. Based on the results of the CA, B&R Environmental recommends the site be granted a **No Further Action** status.

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## **1.0 INTRODUCTION**

### **1.1 PURPOSE AND SCOPE**

A Contamination Assessment (CA) was conducted by Brown and Root Environmental (B&R Environmental) for the U.S. Navy (Navy) Southern Division Naval Facilities Engineering Command under Contract Task Order 0008, for the Comprehensive Long-term Environmental Action Navy (CLEAN III), Contract Number N62467-94-D-0888. The CA was conducted at Site 362 located at the Coastal Systems Station (CSS) in Panama City, Florida. The Florida Department of Environmental Protection (FDEP) Facility Identification Number is 038518667.

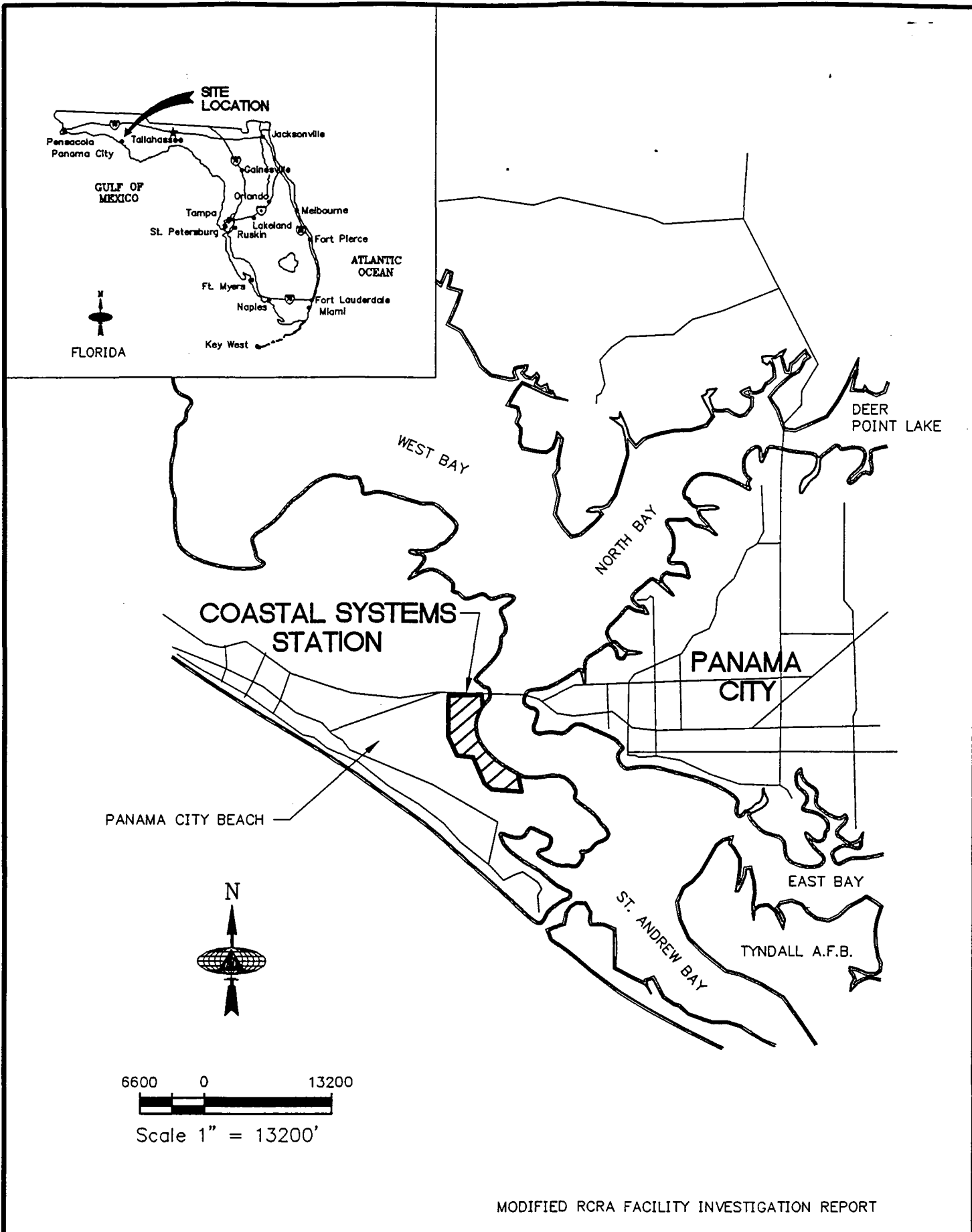
The purpose of this CA was to determine the nature and extent of petroleum hydrocarbon impacted soil and groundwater in accordance with the requirements of Chapter 62-770 of the Florida Administrative Code (FAC). The Navy submitted a Discharge Notification Form (DNF) to the Bay County Health and Rehabilitative Services (HRS), Environmental Health Services Pollution Storage Tank Program on May 16, 1995. The DNF listed the type of substance discharged as unleaded gasoline discovered during piping closure. The cause of the leak was a crack around a pipe at the gasoline tank fillport. Correspondence with the Bay County HRS Environmental Services Pollution Storage Tank Program is included as Appendix A.

A CAR Summary Sheet, as required by Chapter 62-770, FAC is included in Appendix B.

### **1.2 SITE DESCRIPTION**

#### **1.2.1 Location**

The CSS facility is located on the western shore of St. Andrew Bay in Panama City, Bay County, Florida. The facility is bounded by U.S. Highway 98 to the north, St. Andrew Bay to the east, State Road 292B (Magnolia Beach Road) to the south, and State Road 292 (Thomas Drive) to the west as shown on Figure 1-1. Specifically, the CSS facility is located within Section 33 of Township 3 South, Range 15 West and Section 4 of Township 4 South, Range 15 West, as shown on United States Geological Survey (USGS) Panama City Beach Quadrangle Florida 7.5 Minute Series (Topographic) and presented as Figure 1-2.



MODIFIED RCRA FACILITY INVESTIGATION REPORT

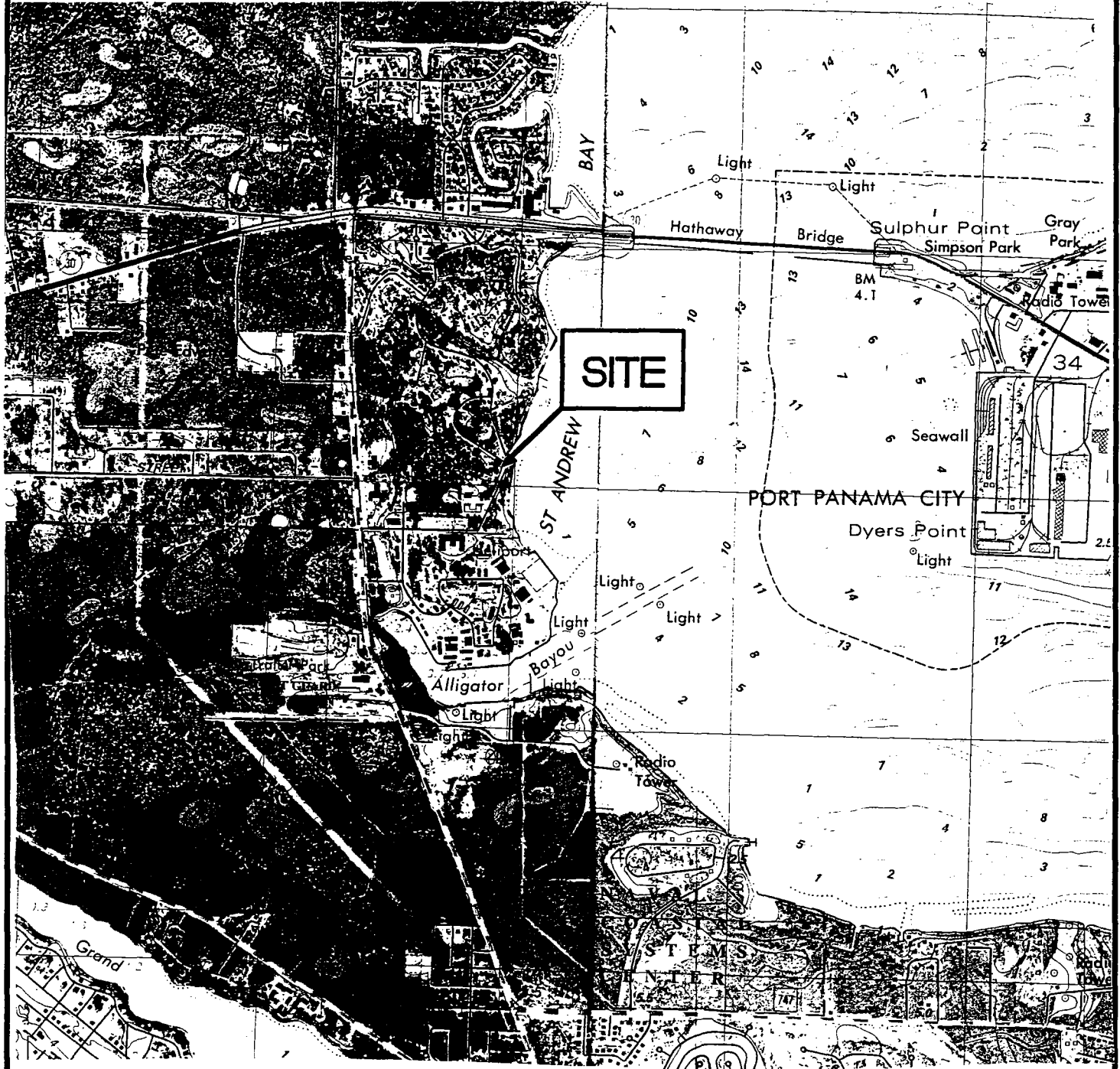
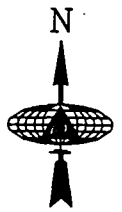
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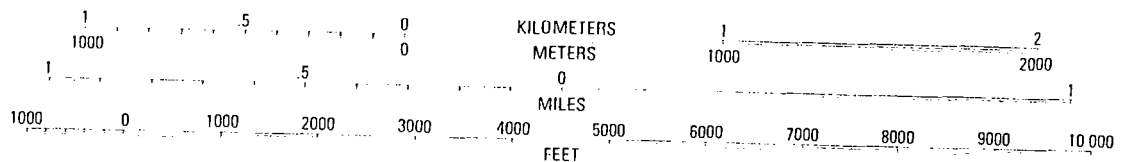
**Brown & Root Environmental**

**FIGURE 1-1  
SITE VICINITY MAP  
SITE 362**

COASTAL SYSTEMS STATION  
PANAMA CITY, FLORIDA



SCALE 1:24 000



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**FIGURE 1-2**  
**SITE LOCATION**  
**SITE 362**

COASTAL SYSTEMS STATION  
PANAMA CITY, FLORIDA

### **1.2.2 Topography and Drainage**

The tank field is elevated above the natural topography to facilitate the installation of the fuel distribution system. The land surface relief is approximately 3 feet from the top of the tank field concrete pad to the surrounding natural-grass land surface. The grade from the top of the concrete pad currently slopes at 1.0 percent towards a collection basin located at the east end of the tank field. Water entering the collection basin flows into a holding tank or is diverted manually via a 6-inch drainage into a grassy area located northeast of the tank field area. Prior to the fuel system distribution upgrade, surface water could manually be diverted from the collection basin into an oil/water separator and then gravity fed into a catch basin previously located northeast of the tank field.

The site is located at an elevation of approximately 14 feet above National Geodetic Vertical Datum (NGVD). The surface topography gently slopes towards the northeast. St. Andrews Bay is located approximately 600 feet east of the site. St. Andrews Bay is designated as a Class III surface water by the State of Florida, suitable for fish, wildlife propagation and water Sports (ABB Environmental Services Inc., RCRA Facility Investigation Report, 1995).

### **1.2.3 Regional Hydrogeology**

The regional hydrogeology of CSS Panama City is described in the RCRA Facility Investigation Report (ABB Environmental Services, Inc., 1995). According to this report, surficial deposits at CSS are Pleistocene to Recent coastal plain sediments of marine and estuarine origin. They predominately consist of quartz sand, clayey sand, and gravel. These deposits vary in thickness from 70 to 100 feet in Bay County. The surficial aquifer is located within these deposits.

Underlying the surficial deposits is the Intercoastal Formation of middle Miocene to late Pliocene. The Intercoastal Formation is composed of sand and poorly consolidated limestone interbedded with discontinuous clay and low permeability sandy limestone. This formation is approximately 150 feet thick at CSS Panama City. The lower beds of the Intercoastal Formation are part of the Floridan aquifer system.

Groundwater at CSS occurs in two major aquifer systems: unconfined surficial aquifer and the Floridan aquifer system, which is under confined and artesian conditions. A third semi-confined aquifer exists in thin permeable sand and shell zones within the Intercoastal Formation, and is separated from the water table aquifer and from the Floridan aquifer system by interbedded low-permeability clay and limestone. The Intercoastal Formation does not produce enough water to be considered a significant water source.

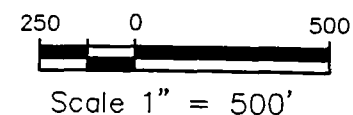
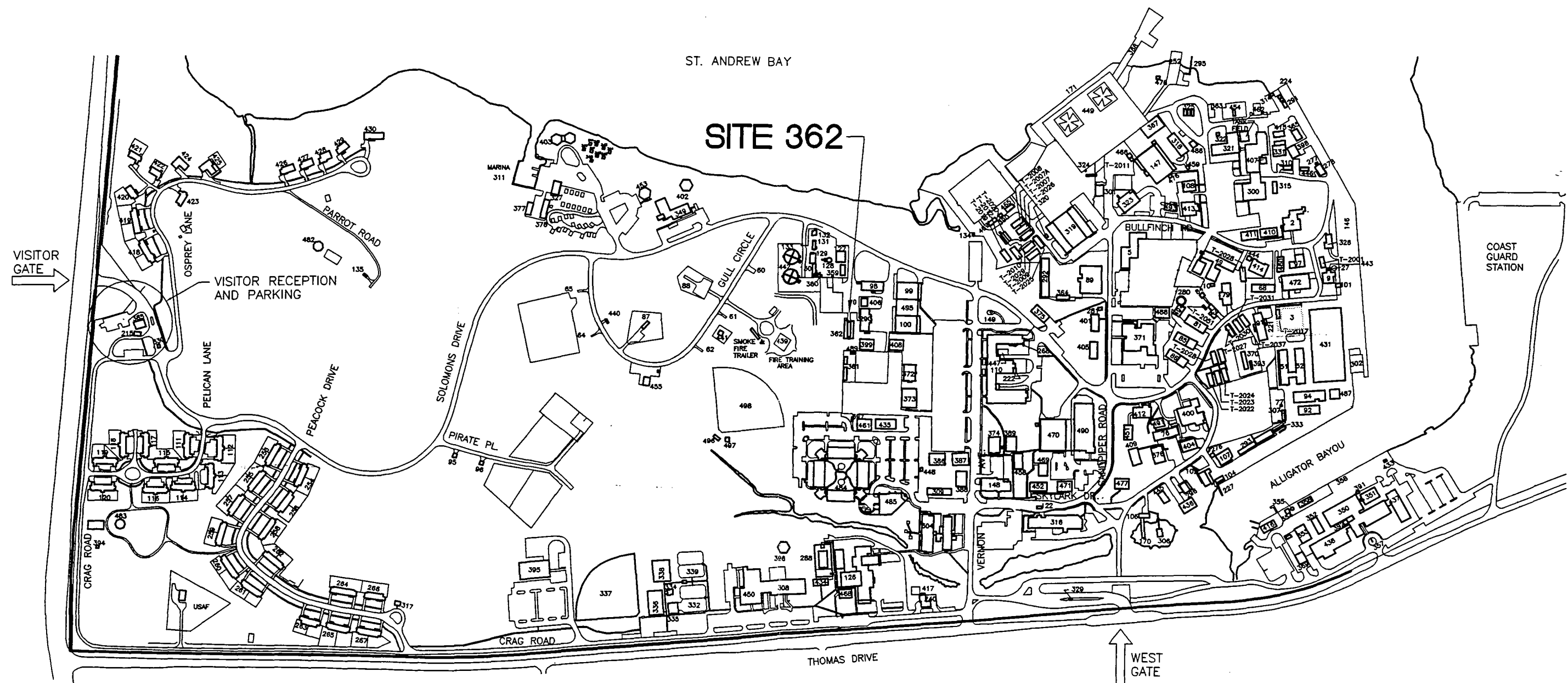
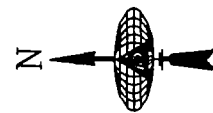
The Floridan aquifer is under confined and artesian conditions where low-permeable clays and limestone beds of the Intracoastal Formation separate the water table aquifer from the Floridan aquifer. The surficial aquifer is reported to have insufficient thickness to produce significant quantities of water and its quality is generally undesirable for human use (i.e., dissolved solids, acidity, and iron content). Low permeability clay lenses in the surficial aquifer and the Intercoastal Formation are discontinuous, the surficial aquifer may be hydraulically connected to the Floridan aquifer system through semiconfining strata of the Intercoastal Formation.

#### **1.2.4 Land Use**

Site 362 is located in the east central area of the CSS property as shown in Figure 1-3. This area of the Base is comprised of research facilities and various support activities. Sources for petroleum hydrocarbon contamination in the immediate study area consist of Firefighting Training Area No. 2 (Solid Waste Management Unit 9 (SWMU-9)) and Firefighting Training Area No. 1 (Area of Concern 1 (AOC 1)). Each of these facilities were used for firefighting training in which drums of flammable materials, including gasoline were poured on the ground and ignited (ABB Environmental Services, Inc., 1995). SWMU-9 is located approximately 300 feet north of Site 362 and AOC 1 is located approximately 150 feet to the southwest. The nearest surface water body to the site is St. Andrew Bay located 600 feet east of the site.

#### **1.2.5 Site Description**

Site 362 is a fuel delivery system which consists of four 12,000-gallon fiberglass underground storage tanks (UST) and a dispenser island. Two USTs, No. 362-A and 362-B currently contain diesel fuel with the remaining two USTs, No. 362-C and 362-D, storing JP-5 fuel and unleaded gasoline, respectively. An underground holding tank is located east of the UST area. The underground holding tank is part of a collection system utilized to contain spills at the fuel delivery system in the event a surface spill occurs. The tanks are currently equipped with overspill buckets. A Site Plan is shown in Figure 1-4.



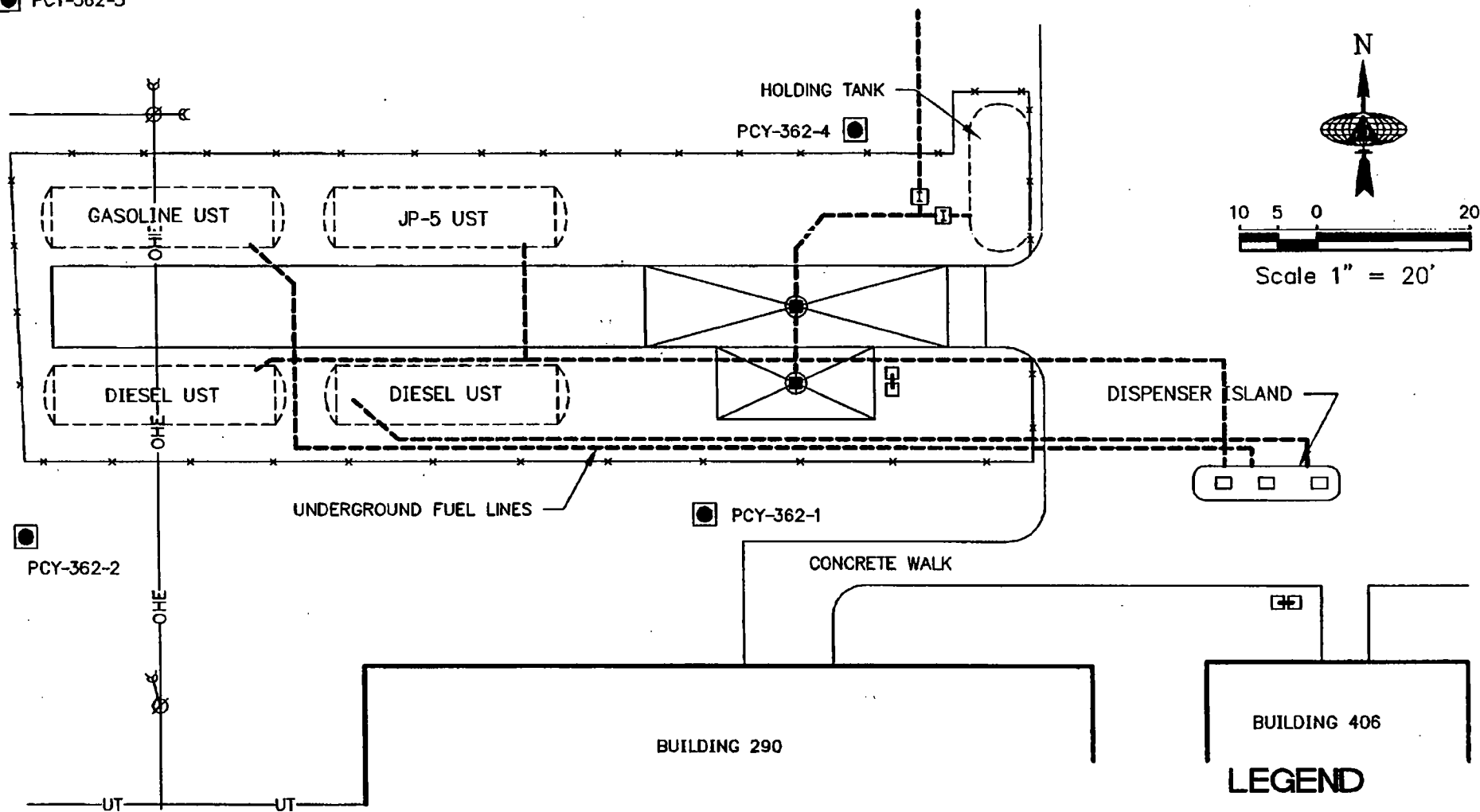
MODIFIED RCRA FACILITY INVESTIGATION REPORT

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SURVEYED BY: -	SURVEY DATE: -
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CAD DWG. NO.: 362-BASE	PROJ. NO.: 7113



FIGURE 1-3  
NAVAL FACILITY SITE LOCATION  
**SITE 362**  
COASTAL SYSTEMS STATION  
PANAMA CITY, FLORIDA

PCY-362-3



## LEGEND

- |  |                       |  |                        |
|--|-----------------------|--|------------------------|
|  | LIGHT STANDARD        |  | COMPLIANCE WELL        |
|  | AREA DRAIN            |  | GUY WIRE               |
|  | UNDERGROUND TELEPHONE |  | OVERHEAD ELECTRIC LINE |
|  | POWER POLE            |  | POST INDICATOR VALVE   |

SITE MANAGER: GFG	CHECKED BY: -
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SURVEYED BY:	SURVEY DATE:
SCALE: 1" = 20'	
CAD DWG. NO.: 7113-362	PROJ. NO.: 7113



**Brown & Root Environmental**

FIGURE 1-4

## SITE PLAN

COASTAL SYSTEMS STATION  
PANAMA CITY, FLORIDA

### **1.2.6 Potable Water Well Survey**

The potable water supply information presented in this report was obtained from the Resource Conservation and Recovery Act (RCRA) Facility Investigation completed for CSS (ABB Environmental Services Inc., 1995). According to this report, potable water for most of Panama City and Panama City Beach, including CSS, is supplied by surface water. Panama City Beach also uses groundwater from the Floridan aquifer system, as do private and domestic water systems throughout Bay County.

The CSS is provided potable water from the Bay County Water System, operated by the Bay County Public Utilities Department. The system draws surface water from Deer Point Lake, located 7 miles northeast of CSS. The use of county water in urban areas such as Panama City, has been reported at 83 to 95 percent.

Panama City Beach operates a public water system which uses a combination of groundwater withdrawal and surface water. The groundwater is obtained from 13 wells located in western Bay County and surface water is purchased from the county water system.

The RCRA Facility Investigation Report indicates records from the Northwest Florida Water Management District list 42 permitted wells screened in the surficial aquifer system in the vicinity of CSS. These 42 wells are classified as "domestic" or other "public supply". The permitted wells are 2-inch and 4-inch diameter wells with capabilities generally less than 20 gallons per minute.

Four public water supply wells are located at CSS. The location of the wells are provided on Figure 1-5. These wells have 12-inch diameter casings and are completed at depths of 350 to 400 feet below land surface (bls). Of the four wells, only PWS-1, located near the housing area at Building 394 adjacent to highway 98, is currently in use. It is used to provide water for air conditioning and heat pumps and draws water from the Floridan aquifer system at approximately 400 feet bls. The remaining wells are inactive.

No private or public potable supply wells were identified in the RCRA Facility Investigation Report as being within a 1/4-mile or 1/2-mile radius of the site, respectively.



## **1.3 SITE HISTORY AND OPERATIONS**

### **1.3.1 Site History**

CSS is one of seven major research, test, and evaluation laboratories of the Space and Naval Warfare Systems Command. The site was first established in 1942 as a harbor for World War II convoy ships and as a liaison with a nearby shipyard. It later became an amphibious landing craft operations school. Research and development began in 1945 when a facility was renamed the U.S. Navy Research Countermeasures Station. In 1952 a research and development program for the use of helicopters for mine countermeasures operations was implemented at the Base. The facility was redesignated as the Naval Coastal Systems Center in 1978 and later as Coastal Systems Station in January 1992.

Site 362 is a fuel delivery system consisted of four 12,000-gallon single walled fiberglass USTs, associated product piping, one dispenser island, and an oil/water separator. The USTs were installed in 1981 and the system was retrofitted in May 1995, to include double-walled product piping and overspill containment buckets. During the system upgrade, the oil/water separator and associated piping were removed. The oil/water separator was located east of the UST area and was used as a containment system for surface spills in the loading area of the delivery system. A figure showing the location of the oil/water separator is presented in the Tank Closure Assessment Report provided in Appendix C. The oil/water separator was replaced with an underground holding tank during the system retrofit. The location of the holding tank is shown in Figure 1-4. Table 1-1 summarizes the contents and construction details of the USTs (E.C. Jordan Company, Release Detection Program For Underground Storage Tanks, May 1990).

Four compliance monitoring wells were installed around the tank field in November 1989, as part of the Navy's Release Detection Program for USTs. The compliance wells were installed as a requirement of the UST Alternate Procedures agreement between the Navy and the Florida Department of Environmental Regulation. (E.C. Jordan Company, 1990). The location of the compliance wells are shown in Figure 1-4.

**TABLE 1-1**  
**PETROLEUM UNDERGROUND STORAGE TANK SUMMARY**  
**Site 362**  
**Coastal Systems Station, Panama City, Florida**  
**FDEP Facility No. 038518667**

<b>Tank No.</b>	<b>Capacity (gallons)</b>	<b>Contents</b>	<b>Construction Details</b>	<b>Date Installed</b>	<b>Current Status</b>
1	12,000	JP-5 Fuel	Fiberglass	1981	Active
2	12,000	Diesel	Fiberglass	1981	Active
3	12,000	Diesel	Fiberglass	1981	Active
4	12,000	Unleaded Gasoline	Fiberglass	1981	Active

### **1.3.2 Structural Integrity of Tanks and Lines**

The USTs were tightness tested after upgrade of the tanks and product piping lines. The tightness tests were completed on August 9 and 10, 1995 and the tanks were reported as being tight. The tank precision testing results are included in Appendix D. The structural integrity of the UST system is monitored by compliance well monitoring data and fuel inventory records. Prior to the UST system upgraded in 1995, available records did not indicate a leak being present in the system (Mike Clayton, personal communication, August 8, 1996).

### **1.3.3 Initial Remedial Action**

Southern Earth Sciences completed a soil screening survey for upgrading the fuel system on May 2, 1995. Soil samples collected during the survey were screened for hydrocarbon vapors using an organic vapor analyzer (OVA) equipped with a flame ionization detector (FID). Sixteen soil borings were installed along the underground piping lines to a depth of 2 feet below the bottoms of the lines, every twenty feet. Three soil borings were performed at the pump dispensers to a depth of 4 feet. A figure showing the location of the soil borings is provided in Appendix C. The results of the soil screening survey identified hydrocarbon vapors in soils at concentrations equal or greater than 100 ppm in the samples collected from SB-14 and SB-19, located near the fillport area on the unleaded gasoline tank. Soils characterized as "excessively contaminated" were not encountered during the soil investigation. "Excessively contaminated" soil, as defined in Chapter 62-770, FAC, as soil with corrected headspace levels in excess of 500 parts per million (ppm). The soil investigation results for the May 2 sampling event summarized in a table included in Appendix C.

On June 6, 1995, additional soil vapor screening samples were collected at the east end of the unleaded gasoline tank. During this investigation, excessively contaminated soil was encountered in the area soil adjacent to the tank. Based on the soil vapor data, excessively contaminated soil was excavated along the inner side of the 12,000-gallon unleaded tank as part of an Initial Remedial Action. Approximately 18 tons of the excessively contaminated soil was transported by Southern Waste Services to Spring Hill Landfill, Graceville, Florida for disposal. The nonhazardous waste manifest for the removal and transport of the soil is included in Appendix C. A figure showing the locations of soil borings for the June 6 soil sampling event and a table summarizing the soil investigation data is provided in Appendix C.

## **2.0 SUBSURFACE INVESTIGATION METHODS**

### **2.1 QUALITY ASSURANCE**

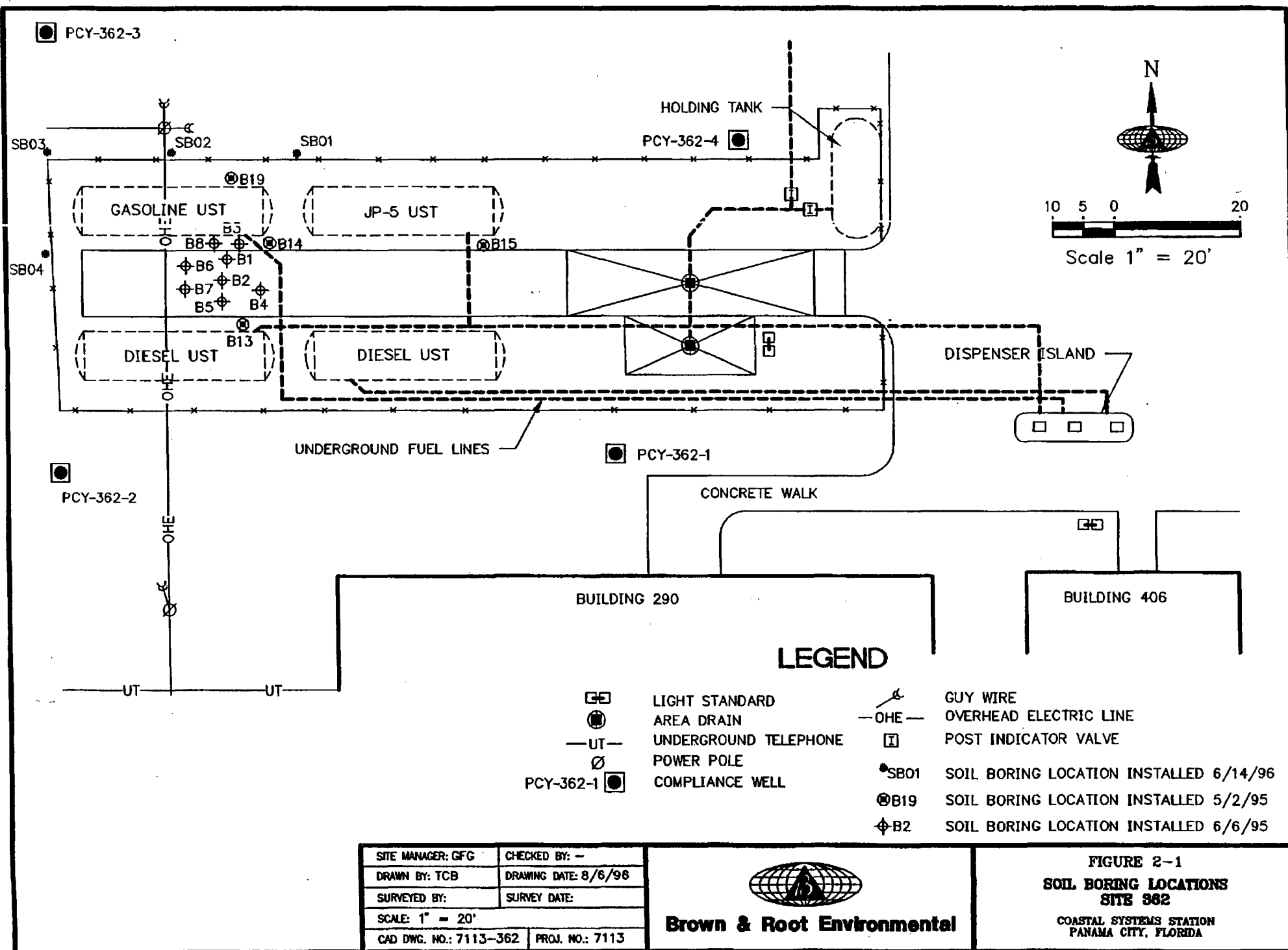
The site investigation was conducted in accordance with the Standard Operating Procedures prescribed by the FDEP Quality Assurance Section Document DER-001/92, and adopted by the B&R Environmental Comprehensive Quality Assurance Plan Number 870055G.

### **2.2 SOIL BORINGS PROCEDURES**

A hydrocarbon vapor soil assessment was conducted at the site by B&R Environmental personnel on June 15, 1996. Four soil borings were excavated in the immediate area surrounding the gasoline UST. Soil samples were collected from each boring for organic vapor screening and collection of lithologic description. Results of the soil vapor screening would be collaborated with the soil vapor data collected during the UST system retrofit to determine the horizontal and vertical extent of petroleum contamination in the vadose zone near the gasoline UST. Soil borings were advanced using a 3.5 inch inner diameter (ID) stainless steel bucket auger. Soil samples were collected at two foot intervals until the water table was encountered at approximately 8.5 feet bls. Soil boring locations and boring completion depths are summarized in Figure 2-1 and Table 2-1, respectively. Soil boring logs are provided in Appendix E.

Prior to the advancement of the hand auger at each boring location, the hand auger was decontaminated using the following procedure:

- Laboratory grade detergent and potable water wash
- Potable water rinse
- Isopropanol rinse
- Deionized water rinse
- Air dry



**TABLE 2-1**  
**SOIL VAPOR MEASUREMENTS**  
**Site 362**  
**Coastal Systems Station**  
**Panama City, Florida**  
**FDEP FACILITY No. 038518667**

Soil Boring No.	Date of Measurement	Sample Interval (feet bls)	Headspace Readings (ppm)		
			Total Organic Reading	Carbon Filtered Reading	Net Reading
SB01	06-15-96	2	ND	ND	ND
		4	ND	ND	ND
		6	2	ND	2
		8	2	ND	2
SB02	06-15-96	2	ND	-	ND
		4	4	ND	4
		6	4	ND	4
		8	5	ND	5
SB03	06-15-96	2	ND	-	ND
		4	ND	-	ND
		6	2	ND	2
		8	4	ND	4
SB04	06-15-96	2	ND	-	ND
		4	ND	-	ND
		6	ND	-	ND
		8	ND	-	ND

- not analyzed  
bls below land surface  
ppm part per million equivalent methane  
\* water table encountered  
ND not detected

Wet soils encountered at 8.5 ft below land surface

## **2.3 WELL CONSTRUCTION**

B&R Environmental utilized the four existing compliance wells during the CA and did not install additional monitoring wells. Compliance wells, PCY-362-1 through PCY-362, were installed under the supervision of E.C. Jordan Company during the week of November 6, 1989. The compliance wells were installed using a SIMCO Model 2800 HS drill rig using 8-inch outside diameter (OD) hollow stem augers. The wells were installed in boreholes advanced to a depth of approximately 13 feet below land surface (bls) and completed to a depth where approximately 2 to 3 feet of well screen were placed above the water table. The wells are constructed of 2-inch inside diameter (ID) flush threaded, schedule 40 PVC casing with 10 feet of 0.010-inch slot screen. The annulus around the well screen was filter packed with No. 20-30 graded silica sand and capped with a 1-foot bentonite seal. The remainder of the annular space being grouted to the surface with cement/bentonite grout. The monitoring wells were developed to remove fine particles using a pneumatic pump (E.C Jordan Company, 1990).

The wells are finished below grade in a surface vault with a sloped concrete pad to prevent surface water runoff from entering the vault. Each of the compliance wells is secured with keyed alike padlocks to ensure well integrity. Compliance well locations are provided in Figure 2-1.

## **2.4 LITHOLOGIC SAMPLING**

Representative soil samples were collected to assess the shallow subsurface geologic conditions at the site. Samples used for lithologic description were collected from a stainless steel hand auger in conjunction with soil boring installations. Soil boring logs are included as Appendix E

## **2.5 SOIL VAPOR ANALYSIS**

Headspace analysis was conducted on each soil sample using an Organic Vapor Analyzer-Flame Ionization Detector (OVA-FID). The soil vapor analysis was performed according to the head space method prescribed in Rule 62-770.200 (2) FAC. The release was from the gasoline tank therefore, soil samples with corrected headspace levels in excess of 500 ppm are considered "excessively contaminated" for gasoline contaminated soil. The Headspace Methodology for Determining Soil Organic Vapor Concentrations is described in detail in Appendix F.

## **2.6 HYDROLOGIC INVESTIGATION**

The depth to water in each of the compliance wells was measured on July 12, 1996. Measurements were collected from the top of well casings using an electronic water level indicator. The water level measurements were collected to document depth to water to the surficial aquifer. The water level measurement field forms are provided in Appendix G. The hydraulic gradient and a tidal influence study was not conducted based on the groundwater analytical results (Section 3.3) from groundwater samples collected at the site.

## **2.7 WATER SAMPLING**

### **2.7.1 Free Product Sampling**

Prior to groundwater sampling B&R Environmental personnel checked each well for free product using a pre-cleaned Teflon® bailer. The Teflon® bailer was used to extract a water sample from the top of the well's water column to visually inspect for free product. Free product was not encountered during the CA by B&R Environmental personnel.

### **2.7.2 Groundwater Sampling**

Groundwater sampling was performed to determine the presence or absence of dissolved petroleum hydrocarbons in shallow groundwater in the vicinity of the UST area. Groundwater samples were collected by B&R Environmental personnel from site compliance wells PCY-362-1, PCY-362-2, PCY-362-3, and PCY-362-4 on July 12, 1996. The groundwater samples were analyzed using EPA Method 239.2 for lead (unfiltered), EPA Method 504.1 for Extractable Volatile Organic (1-2-dibromoethane EDB), EPA Method 601 for Purgeable Halocarbons, and EPA Method 602 for Purgeable Aromatics (benzene, toluene, ethylbenzene, and xylenes, and methyl-tert butyl ether). New silicon tubing and a peristaltic pump was used when collecting groundwater samples for lead analysis. Groundwater samples were collected using pre-cleaned Teflon® bailers when sampling for other parameters. Approximately five well volumes of groundwater was removed from each well prior to sampling. Temperature, pH, conductivity measurements and well purge volumes were recorded at the time of sample collection. The data is provided in Appendix G. Groundwater samples were placed on ice and shipped to Quality Analytical Laboratories, Inc., Montgomery, Alabama.

During the sampling events, quality control samples (i.e. equipment blanks) were prepared and submitted to the laboratory as required by the approved B&R Environmental's FDEP Comp QAP.

Sampling activities were documented in a site specific field logbook, and samples were transmitted under chain-of-custody protocols.

## **3.0 RESULTS OF INVESTIGATION**

### **3.1 SITE HYDROGEOLOGY**

#### **3.1.1 Lithology**

The site is underlain by a light brown to yellowish orange, fine to medium-grained quartz sand to a depth of approximately 9 feet bls. Due to the homogeneity of the subsurface, no lithologic cross-section was constructed. Soil boring logs are included as Appendix E.

#### **3.1.2 Depth to Groundwater**

The site is underlain by the surficial aquifer which is classified as a G-II aquifer by the State of Florida. Based on water level data collected on July 12, 1996, the depth to the shallow aquifer ranged from approximately 7 to 8 feet bls. The depth to groundwater measurements are presented in Table 3-1. Water level measurement logs are provided in Appendix G.

### **3.2 SOIL QUALITY**

"Excessively contaminated" soil was not encountered during the CA. Hydrocarbon vapors were detected in soil samples collected from SB01, SB02, and SB03. The highest soil vapor concentration was detected in boring SB02 at 5 parts per million (ppm). Soil Vapor Screening Results are presented in Table 2-1. Soil boring locations and vapor readings are depicted on Figure 3-1.

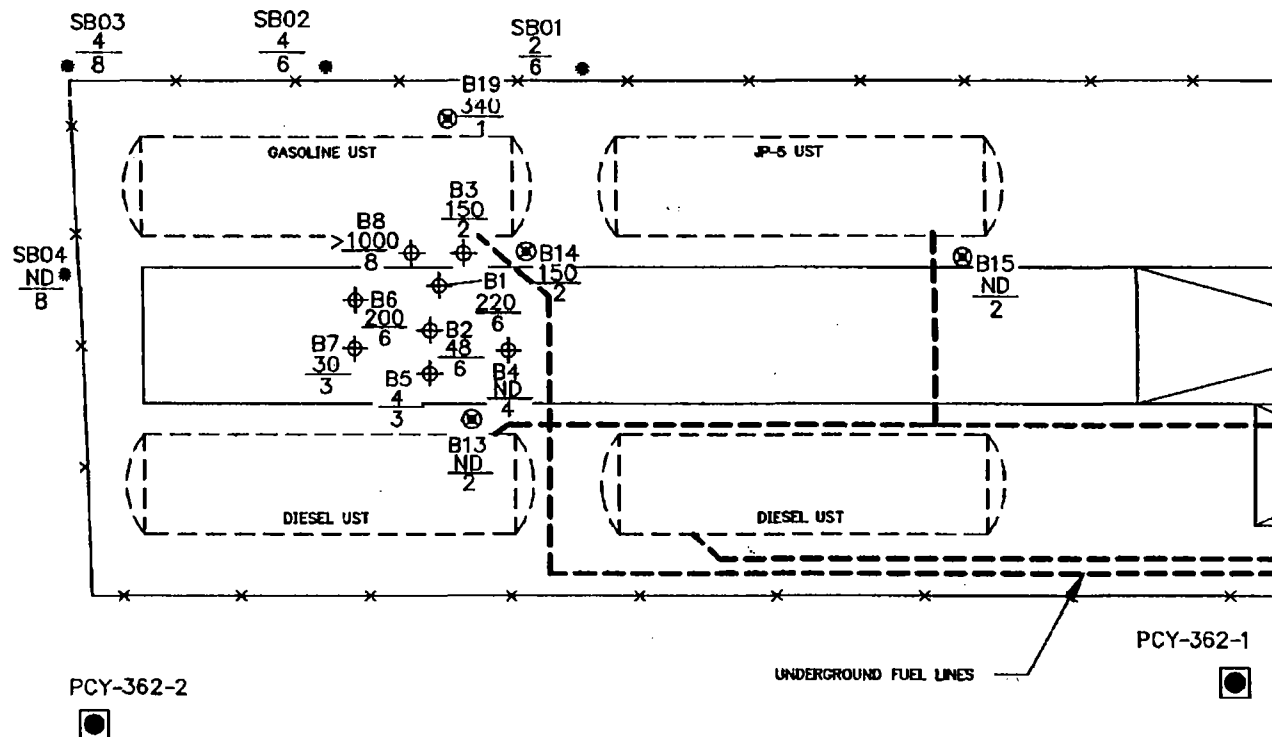
**TABLE 3-1**  
**GROUNDWATER ELEVATIONS**  
**Site 362**  
**Coastal Systems Station, Panama City, Florida**  
**FDEP Facility No. 038518667**

Well Number	Date	Free Product Thickness (feet)	Depth to Water (feet) <sup>2</sup>	Well Screen Interval (feet below land surface)
PCY-362-1	07/12/96	0.00	8.40	3 to 13
PCY-362-2	07/12/96	0.00	7.20	3 to 13
PCY-362-3	07/12/96	0.00	6.93	3 to 13
PCY-362-4	07/12/96	0.00	8.66	3 to 13

Notes:

All water levels are measured below top of casing.

PCY-362-3



## LEGEND

- SB01 SOIL BORING LOCATION INSTALLED 6/14/96
- ⊕ B19 SOIL BORING LOCATION INSTALLED 5/2/95
- ⊕ B2 SOIL BORING LOCATION INSTALLED 6/6/95
- PCY-362-1 COMPLIANCE WELL
- ND HIGHEST HYDROCARBON SOIL VAPOR CONCENTRATION (ppm)
- 2 DEPTH OF SOIL SAMPLE (FT.)

7.5 0 15  
Scale 1" = 15'

SITE MANAGER: GFG	CHECKED BY: WP
DRAWN BY: TCB	DRAWING DATE: 11/14/96
SURVEYED BY: -	SURVEY DATE: -
SCALE: 1" = 15'	
CAD DWG. NO.: 7113-362	PROJ. NO.: 7113



**Brown & Root Environmental**

FIGURE 3-1  
SOIL HYDROCARBON VAPOR  
CONCENTRATIONS - SITE 362  
COASTAL SYSTEMS STATION - SITE 362  
PANAMA CITY, FLORIDA

### **3.3 WATER QUALITY**

B&R Environmental collected groundwater samples from the four compliance wells (PCY-362-1 through PCY-362-4) on July 12, 1996. EPA Methods 601, 602, and 504.1 were reported below laboratory detection limits. Total lead was detected in each of the groundwater samples at concentrations ranging from 7.2 ug/L to 14.2 ug/L. The total lead concentrations were below the State target level of 50 ug/L for dissolved lead.

Methylene chloride was detected at 10 ug/L in the field equipment blank sample. Methylene chloride is a common laboratory contaminant. Total lead and toluene were reported in the equipment blank at concentrations of 0.75 ug/L and 1.3 ug/L, respectively. A Summary of Groundwater Analytical Results is presented in Table 3-2. Laboratory analytical results are provided as Appendix H, and field sampling forms are included in Appendix G.

**TABLE 3-2**  
**SUMMARY OF GROUNDWATER QUALITY:**  
**SELECTED PARAMETERS FROM THE GASOLINE ANALYTICAL GROUP**  
**Site 362**  
**Coastal Systems Station, Panama City, Florida**  
**FDEP ID No. 038518667**

Well ID	Date Sampled	Benzene (µg/L)	Total VOA (µg/L)	MTBE (µg/L)	DCE (µg/L)	EDB (µg/L)	Lead Unfiltered Samples (µg/L)
PCY-362-1	07/12/96	<1.0	NCD	< 1.0	<1.0	<0.02	14.2
PCY-263-2	07/12/96	<1.0	NCD	<1.0	<1.0	<0.02	10.4
PCY-362-3	07/12/96	<1.0	NCD	<1.0	<1.0	<0.02	7.2
PCY-362-4	07/12/96	<1.0	NCD	<1.0	<1.0	<0.02	13.2
Trip Blank	07/12/96	<1.0	NCD	<1.0	<1.0	<0.02	NA
Equipment Blank	07/12/96	< 1.0	1.3	< 1.0	<1.0	<0.02	<0.75

NA not analyzed  
Total VOA total volatile organic aromatics = sum of benzene, toluene, ethylbenzene, and xylenes  
MTBE methyl tert-butyl ether  
DCE 1,2-Dichloroethane  
EDB 1,2-Dibromoethane = ethylene dibromide  
NCD no constituents detected

## **4.0 DISCUSSION**

"Excessively contaminated" soil, as defined by Chapter 62-770.200 FAC, was not detected within the vadose zone by B&R Environmental during this CA. Free product was not encountered during the CA. The source of the dissolved hydrocarbons was identified as being a cracked pipe at the fillport. The crack was repaired prior to the reactivation of the fuel system following the system upgrade. Excessively contaminated soil identified during the UST system was removed during an IRA. The excessively contaminated soil was encountered in the area of the discharge pipe for the gasoline UST. Integrity tests performed on the site's USTs after the fuel system upgrade were reported as tight.

Depth to water to the surficial aquifer (water table) has been documented at approximately 7 to 8 feet bls. The total dissolved solids content in the surficial aquifer in the area of CSS, qualifies the aquifer for classification as a G-II aquifer (Chapter 62-3.403 FAC).

Municipal well fields and surface water intakes which supply drinking water to the local area are located outside a 0.50-mile radius of the site. Domestic water wells were not identified within 0.25-mile radius of the site. Surface water bodies and freshwater aquifers utilized in the study area are not likely to be threatened by the levels of hydrocarbons detected at the site.

## **5.0 CONCLUSION AND RECOMMENDATION**

The results of B&R Environmental's CA at CSS Site 362 suggest the following:

- Groundwater in the surficial aquifer at the site has a G-II classification;
- Private potable water wells were not identified within 0.25-mile radius of the site and municipal well fields and surface water intakes were not identified within a 0.50-mile radius of the site;
- Excessively contaminated soil was not encountered around the gasoline UST during B&R Environmental's soil survey;
- Excessively contaminated soil identified during IRA activities in 1995 was removed;
- The source for the petroleum release identified during the IRA was repaired;
- Free product was not encountered at the site; and
- Dissolved petroleum hydrocarbon compounds were not detected in the groundwater samples at concentrations which exceed FDEP No Further Action (NFA) criteria for a G-II aquifer, without wells (FDEP, 1990)(Table 5-1);

Based upon the hydrogeological and chemical data presented in this CAR, and the CA criteria for No Further Action (NFA) status as described in Rule 62-770.600(5) FAC and the FDEP Publication FDER-10/90, B&R Environmental proposes a NFA status for the site.

**TABLE 5-1**  
**MAXIMUM ACCEPTABLE GROUNDWATER CONSTITUENT LEVELS**  
**Site 362**  
**Coastal Systems Station, Panama City, Florida**  
**FDEP Facility No. 038518667**

Analyte or Analytical Method	Highest Ground Water Constituent Level in Site Monitoring Wells	No Further Action		Monitoring Only			
		G-II Aquifer (with wells)	G-II Aquifer (without wells)	G-II Aquifer with wells		G-II Aquifer without wells	
				source	perimeter	source	perimeter
Total BTEX	NCD	50	50	500	50	1000	50
Benzene	<1.0	1	50	250	1	500	50
TRPH	NA	5^	5^	50^	5^	100^	5^
Lead	14.2^	50	50	500	50	1^	50
EDB	<0.02	0.02	0.02	0.02	0.02	0.4	0.02
Total Naphs	NA	100	100	1000	100	2000	100
EPA 610	NA	DL	DL	10xDL	DL	20xDL	DL
EPA 601	<1.0	DW-SRLs	DW-SRLs	10xDW-SRLs	DW-SRLs	20xDW-SRLs	DW-SRLs
Arsenic	NA	50	50	500	50	1^	50
Cadmium	NA	10	10	100	10	200	10
Chromium	NA	50	50	500	50	1^	50
EPA 624	NA	DW-SRLs	DW-SRLs	10xDL-SRLs	DW-SRLs	20xDW-SRLs	DW-SRLs
EPA 625	NA	DW-SRLs	DW-SRLs	10xDL-SRLs	DW-SRLs	20xDW-SRLs	DW-SRLs

**Notes:**

All data in µg/L unless otherwise noted

^ data in mg/L

Source: monitoring wells near suspected hydrocarbon source

Perimeter: Monitoring wells located at perimeter of plume

TRPH: Total Recoverable Petroleum Hydrocarbons

Total Naphs: sum of naphthalenes and methylnaphthalenes

DW-SRLs: Drinking Water Standards or Applicable Site Rehabilitation Levels

DL: Detection Limit

NCD No Constituents Detected

NA Not Analyzed

## 6.0 REFERENCES

ABB Environmental Services, Inc., 1995, RCRA Facility Investigation, Coastal Systems Station Panama City, Florida.

E.C Jordan Company, 1990, Release Detection Program For Underground Storage Tanks, Naval Coastal Systems Center Panama City, Florida.

Florida Department of Environmental Protection, October 1990. No Further Action and Monitoring Only Guidelines for Petroleum Contaminated Sites. Guidance document issued by Bureau of Waste Cleanup, Technical Review Section.

U.S. Geological Survey. Panama City, FLA., Quadrangle 1982. 7.5 Minute Series, Topographic Quadrangle Maps of Florida: scale 1:24,000.

U.S. Geological Survey. Panama City Beach, FLA., Quadrangle 1982. 7.5 Minute Series, Topographic Quadrangle Maps of Florida: scale 1:24,000.

**APPENDIX A**

**FDEP CORRESPONDENCE**



6280  
Ser 0511/106

16 MAY 1995

Pollutant Storage Tank Program  
Attn: Mr. Dennis Pinkovsky  
HRS Environmental Health Services  
Bay County Public Health Unit  
619 North Cove Boulevard, Suite C  
Panama City, FL 32401

Dear Mr. Pinkovsky:

We are forwarding a Discharge Reporting Form #17-761.900(1) in accordance with Chapter 17-761 Florida Administrative Code. This notification is for the discharge discovered around the unleaded gasoline Tank #362-D, during the pipe replacement job.

The Closure Assessment Form #17-761.900(6) will follow shortly after we attempt Initial Remediation efforts to clean close the site. Your office was notified by telephone 16 May, of our proposed initial remediation plans. The official written notification is being prepared and will soon follow.

If you require additional information at this time, please contact Mr. Mike Clayton, Code 0511MC, at (904) 235-5859 or Mr. Arturo McDonald, Code 0511AM, at (904) 234-4743.

Sincerely,

W. A. OSTER  
Lieutenant Commander, U.S. Navy  
By direction of  
the Commanding Officer

Encl:  
(1) DER Form 17-761.900(1)

GENERAL SERVICES ADMINISTRATION		5099-101	88 7540-01-317-7368
Fax # (904) 234-4774		X # (904) 656-7403	
Phone # (904) 235-5859		Agency 6500 + 8007	
From Mike Clayton		Jerny Good	
# of pages 3		FAX TRANSMITTAL	

TIONAL FORM 99 (7-90)

# Discharge Reporting Form

Use this form to notify the Department of Environmental Regulation of:

1. Results of tank tightness testing that exceed allowable tolerances within ten days of receipt of test result.
2. Petroleum discharges exceeding 25 gallons on pervious surfaces as described in Section 17-751.450 F.A.C. within one working day of discovery.
3. Hazardous substance (CERCLA regulated), discharges exceeding applicable reportable quantities established in 17-751.450(2) F.A.C., within one working day of the discovery.
4. Within one working day of discovery of suspected releases confirmed by: (a) released regulated substances or pollutants discovered in the surrounding area, (b) unusual and unexplained storage system operating conditions, (c) monitoring results from a leak detection method or from a tank closure assessment that indicate a release may have occurred, or (d) manual tank gauging results for tanks of 550 gallons or less, exceeding ten gallons per weekly test or five gallons averaged over four consecutive weekly tests.

Mail to the DER District Office in your area listed on the reverse side of this form

PLEASE PRINT OR TYPE  
Complete all applicable blanks

1. DER Facility ID Number: 038518667 2. Tank Number: 362-D 3. Date: 5/16/95
4. Facility Name: COASTAL SYSTEMS STATION  
Facility Owner or Operator: US NAVY (CODE 051)  
Facility Address: 6703 W Hwy 98, Panama City, FL 32407-7001  
Telephone Number: (904) 235-5859 County: BAY  
Mailing Address: Commanding Officer, Code 051, 6703 W Hwy 98, Panama City, FL 32407-7001
5. Date of receipt of test results or discovery: \_\_\_\_\_ month/day/year
6. Method of initial discovery. (circle one only)  
A. Liquid detector (automatic or manual) D. Emptying and inspection F. Vapor or visible signs of a discharge in the vicinity  
B. Vapor detector (automatic or manual) E. Inventory control G. Closure: Piping (explain  
C. Tightness test (underground tanks only) H. Other: \_\_\_\_\_
7. Estimated number of gallons discharged: Unknown
8. What part of storage system has leaked? (circle all that apply) A. Dispenser B. Pipe C. Fitting D. Tank E. Unknown
9. Type of regulated substance discharged. (circle one)  
A. leaded gasoline D. vehicular diesel L. used/waste oil V. hazardous substance includes pesticides, ammoni-  
B. unleaded gasoline F. aviation gas M. diesel chlonne and derivatives (write in name or Chemical Abstr-  
C. gasoline G. jet fuel Q. new/lube oil Service CAS number) \_\_\_\_\_  
Z. other (write in name) \_\_\_\_\_
10. Cause of leak. (circle all that apply)  
A. Unknown C. Loose connection E. Puncture G. Spill I. Other (specify) Crack and  
B. Split D. Corrosion F. Installation failure H. Overflow pipe connection to ti
11. Type of financial responsibility. (circle one)  
A. Third party insurance provided by the state insurance contractor C. Not applicable  
B. Self-insurance pursuant to Chapter 17-769.500 F.A.C. D. None
12. To the best of my knowledge and belief all information submitted on this form is true, accurate, and complete.

W. A. OSTER, Public Works Officer

Printed Name of Owner, Operator or Authorized Representative

[Signature]  
Signature of Owner, Operator or Authorized Representative

Notary Public  
10 Government Center  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

Notary Public  
1000 Government Center, Suite 800  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

Notary Public  
1000 Government Center, Suite 800  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

Notary Public  
1000 Government Center, Suite 800  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

Notary Public  
1000 Government Center, Suite 800  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

Notary Public  
1000 Government Center, Suite 800  
Tallahassee, Florida 32301-1100  
Date: 5/16/95

**APPENDIX B**  
**CAR SUMMARY SHEET**

Facility Name: Coastal Systems Station Reimbursement Site ☐  
Location: Panama City, Florida State Contract Site ☐  
EDI #: \_\_\_\_\_ FAC I.D. #: 038518667 Other: ☒

- (17) Other remarks:

**APPENDIX C**

**CLOSURE REPORT AND ASSESSMENT OF FUEL PIPE REPLACEMENT  
BUILDING 362**

**THICKSTUN BROS. EQUIPMENT CO.**

841 ALTON AVENUE — COLUMBUS, OHIO 43219  
614/252-8422 252-2229 (FAX)

---

September 14, 1995

Naval Coastal System Station  
Attn: LT Azzinari  
6703 West Highway 98  
Suite 126  
Panama City, Florida 32407-7001

Subject: Closure report and site assessment on fuel pipe  
replacement Building 362

Dear LT Azzinari:

Please find the following listed documents within this  
binder:

A. Closure assessment form DER17-761.900(6)

1. Initial Remedial Action Notification Form

B. Description of contracted work: To uncover 3" steel fuel  
lines located at the fueling facility at Building 362. These  
lines ran from 2-jet fuel tanks, 1-diesel tank, to a truck tanker  
loading pumping station, 1-line from a gasoline tank, and an  
additional line from the diesel tank to site dispensers (see  
diesel photo and print layout). After the lines were uncovered  
we were to remove the old pipes, sample the soil under the pipes,  
and replace these pipes with new 3" fiberglass product piping in  
4" fiberglass containment pipes.

C. Testing and clean up procedure.

D. Area and site maps.

E. Photos and site diagrams.

F. Laboratory testing plans.

G. Laboratory test results.

H. Soil disposal manifests.



DEPARTMENT OF THE NAVY  
COASTAL SYSTEMS STATION DAHLGREN DIVISION  
NAVAL SURFACE WARFARE CENTER  
6703 WEST HIGHWAY 98  
PANAMA CITY FL 324077001

IN REPLY REFER TO:

5090  
Ser 0511/107

28 MAY 1995

Pollutant Storage Tank Program  
Attn: Mr. Dennis Pinkovsky  
HRS Environmental Health Services  
Bay County Public Health Unit  
619 North Cove Boulevard, Suite C  
Panama City, FL 32401

Dear Mr. Pinkovsky:

We are forwarding the Initial Remedial Action Notification Form, as specified in Appendix A of Florida's guidance document, "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils," dated May 1992. This notification is for the immediate clean-up of the excessively contaminated soil discovered around the Facility #362-D gasoline tank. The soil will be defined by the use of an organic vapor analyzer. Any soil with an organic vapor analysis reading equal to or greater than 500 ppm will be removed for disposal at an approved facility.

The Closure Assessment Form #17-761.900(6) and the Initial Remedial Action Report will follow shortly after we complete initial remediation efforts to clean the site. Your office was notified by telephone May 16, 1995, of our proposed initial remediation plans.

If you require additional information at this time, please contact Mr. Mike Clayton, Code 0511MC, at (904) 235-5859 or Mr. Arturo McDonald, Code 0511AM, at (904) 234-4743.

Sincerely,

D. L. GREEN  
Assistant Public Works Officer  
By direction of  
the Commanding Officer

Encl:

(1) Initial Remedial Action Notification Form

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

# of pages 3

To	KEN THICKSTON	From	LT AZZINARI
Dept./Agency		Phone #	
Fax #	(814) 252-2229	Fax #	

NSN 7540-01-317-7368

5090-101

GENERAL SERVICES ADMINISTRATION



## Closure Assessment Form

Owners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage system closure assessment was performed in accordance with Rule 17-761 or 17-762, Florida Administrative Code. Eligible Early Detection Incentive (EDI) and Reimbursement Program sites do not have to perform a closure assessment.

Please Print or Type  
Complete All Applicable Blanks

1. Date: AUG. 4, 1995
2. DER Facility ID Number: 03-851-8667 3. County: BAY
4. Facility Name: NAVAL COASTAL SYSTEMS STATION BLD. 362
5. Facility Owner: U.S. NAVY
6. Facility Address: 6703 W. HWY. 98, PANAMA CITY, FLA. 32407-7001
7. Mailing Address: SAME
8. Telephone Number: (904) 234-4764 9. Facility Operator: U.S. NAVY
10. Are the Storage Tank(s): (Circle one or both) A. Aboveground or (B) Underground
11. Type of Product(s) Stored: JET FUEL, DIESEL & GASOLINE
12. Were the Tank(s): (Circle one) A. Replaced B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)  
NONE - THIS IS FOR PIPE REPLACEMENT.
13. Number of Tanks Closed: 0 14. Age of Tanks: \_\_\_\_\_
14. WE REPLACED 3" STEEL LINES WITH 3" DOUBLE WALL R.F.P. WITH SUMP LEAK DETECTION.

## Facility Assessment Information

Yes No Not Applicable

☐ ☐ NA  
☒ ☐

☒ ☐  
☒ ☐

☐ ☒  
☒ ☐

☐ ☒

☒ ☐

☐ ☐ ☒

☐ ☒

☒ ☐

1. Is the facility participating in the Florida Petroleum Liability Insurance and Restoration Program (FPLIRP)?
2. Was a Discharge Reporting Form submitted to the Department?  
If yes, When: MAY 1995 Where: BAY COUNTY OFFICE
3. Is the depth to ground water less than 20 feet?
4. Are monitoring wells present around the storage system?  
If yes, specify type: ☒ Water monitoring ☐ Vapor monitoring
5. Is there free product present in the monitoring wells or within the excavation?
6. Were the petroleum hydrocarbon vapor levels in the soils greater than 500 parts per million for gasoline?  
Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
7. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene?  
Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
8. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels?  
(See target levels on reverse side of this form and supply laboratory data sheets)
9. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
10. Are any potable wells located within 1/4 of a mile radius of the facility?
11. Is there a surface water body within 1/4 mile radius of the site? If yes, indicate distance: 1/2 mi.

DER Form 17-761.900(8)
Form Title Closure Assessment Form
Effective Date December 10, 1990
DER Application No. _____ (Filed in by DER)

12. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations, and dispenser locations must accompany this form.
13. If a facility has a pollutant storage tank system that has both gasoline and kerosene/diesel stored on site, both EPA Method 602 and EPA Method 610 must be performed on the ground water samples obtained.
14. Amount of soils removed and receipt of proper disposal.
15. If yes is answered to any one of questions 5-9, a Discharge Reporting Form 17-761.900(1) indicating a suspected release shall be submitted to the Department within one working day.
16. A copy of this form and any attachments must be submitted to the Department's district office in your area and to the locally administered program office under contract with the Department within 60 days of completion of tank removal or filling a tank with an inert material.

Signature of Owner

Date

SEPT. 5, 1995

Signature of Person Performing Assessment

Date

V. PRES. THICKSTUN BROS. INC.

Title of Person Performing Assessment

### State Ground Water Target Levels That Affect A Pollutant Storage Tank System Closure Assessment

State ground water target levels are as follows:

1. For gasoline (EPA Method 602):

- |                                      |         |
|--------------------------------------|---------|
| a. Benzene                           | 1 ug/l  |
| b. Total VOA                         | 50 ug/l |
| - Benzene                            |         |
| - Toluene                            |         |
| - Total Xylenes                      |         |
| - Ethylbenzene                       |         |
| c. Methyl Test-Butyl<br>Ether (MTBE) | 50 ug/l |

2. For kerosene/diesel (EPA Method 610):

- |  |
|--|
| a. Polynuclear Aromatic Hydrocarbons (PAHS)        |
| (Best achievable detection limit, 10 ug/l maximum) |

PETROLEUM CONTAMINATION  
INITIAL REMEDIAL ACTION NOTIFICATION FORM

This notification provides written confirmation of initial remedial action (IRA) as required by Chapter 17-770.300(5) and (8), Florida Administrative Code. Notification must be within three working days of initiation of an IRA. Upon completion of the IRA, an Initial Remedial Action Report should be submitted.

I. Facility Name: COASTAL SYSTEMS STATION  
Facility Address: Code 051, 6703 W. Hwy 98, Panama City, FL 32407-7001  
DER Facility Number (if applicable): 038518667  
Date of Initiation of IRA: Estimated Start date 5/30/95

II. FREE PRODUCT RECOVERY (Please provide brief responses.)

A. Type of Product Discharged: Unleaded Gasoline  
B. Estimated Quantity Lost: Unknown gallons  
C. Product Thickness in Wells, Boreholes, Excavations, or Utility Conduits (Attach Site Plan indicating locations and depths): NA  
D. Method of Product Recovery: NA  
E. Type of Discharge During Product Recovery: NA  
F. Type of Treatment and Expected Effluent Quality from Any Discharge: NA  
G. Quantity and Disposal of Recovered Product: NA

III. SOIL EXCAVATION

A. Estimated Volume of Contaminated Soil Excavated (Attach Site Plan indicating location of excavation(s) and soil borings): 20 cubic yards (in place)


- B. Type of Product in Soil: Unleaded Gasoline
- C. Method Used to Determine Excess Soil Contamination: Organic vapor Analysis (OVA) instrument with a flame ionization detector (Southern Earth Sciences Inc)
- D. Method of Treatment or Disposal of Contaminated Soil: Landfill

#### IV. REPORTING

This notification should be submitted to the appropriate Local Program, if any, or to:

Florida Department of Environmental Regulation  
Bureau of Waste Cleanup  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

D.L. GREEN  
Person Completing Form  
NSWCCSS Assistant Public Works Officer  
Title, Affiliation

  
Signature, Date

Pollutant Storage Tank Program  
HRS Environmental Health Services  
Bay County Public Health Unit  
619 North Cove Blvd, Suite C  
Panama City FL 32401

**PETROLEUM CONTAMINATION  
INITIAL REMEDIAL ACTION REPORT FORM**

An Initial Remedial Action report, summarizing the initial remedial action (IRA), should be prepared to satisfy the requirements of Chapters 17-770.630(1)14; 17-773.500(1)(a)4; and 17-773.500(2)(a)4, Florida Administrative Code, (FAC). This form may be used for the IRA report. The report should be sent to the appropriate local program and:

Florida Department of Environmental Regulation  
Bureau of Waste Cleanup  
Engineering Support Section  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

I. **FACILITY NAME:** U.S. NAVY COASTAL SYSTEM STATION  
**Facility Address:** CODE051. 6703 W. HIGHWAY 98 PANAMA CITY , FL 32407-7001  
**DER Facility Number (if applicable):** 038518667  
**Date IRA Initiated:** 5/30/95 **Date IRA Completed:** 8/4/95

II. **FREE PRODUCT RECOVERY**

A. **Type(s) of Product Discharged:** GASOLINE (UNLEADED)

B. **Quantity**

1. **Estimated Gallons Lost:** UNKNOWN
2. **Gallons Recovered:** NONE through \_\_\_\_\_ (date)
3. **Attach Exhibit Indicating Amount of Product Recovered, Dates and Cumulative Totals.**

C. **Attach a Scaled Site Plan, Indicating the Locations and Product Thickness in Wells, Boreholes, Excavations, or Utility Conduits and Wells Utilized for Recovery of Free Product.** SOIL EXCAVATION ONLY

D. **Method of Product Recovery:** SOIL EXCAVATION  
\_\_\_\_\_  
\_\_\_\_\_

E. **Type of Discharge During Product Recovery:** NONE  
\_\_\_\_\_

F. Type of Treatment, i.e., Oil/Water Separator: \_\_\_\_\_  
SOIL AERIATED AND DISPOSED IN LANDFILL

G. Attach Written Proof of Proper Disposal of Recovered Product: SEE ATTACHED NON-HAZARDOUS MANIFEST AND WEIGHT TICKET, CONTAMINATED SOIL DISPOSAL ONLY.

### III. SOIL EXCAVATION

NOTE: Soil shall be defined as excessively contaminated using the procedure stated in Chapter 17-770.200(2), FAC. Representative soil sampling shall be performed as close to the time of excavation as possible, but at no time shall exceed three (3) months prior to the start of excavation. Stockpiled soils greater than thirty (30) days on site waiting for treatment and disposal, must be re-sampled immediately prior to disposal to assure soils are still excessively contaminated.

If soil sampling data indicates that the amount of soil that is excessively contaminated exceeds 1500 cubic yards, treatment of all excessively contaminated soil at the site shall be addressed in a remedial action plan, and no soil IRA activities shall be performed except for the removal of soils in the immediate vicinity of the tanks.

Only soil above the ambient water table at the time of excavation can be considered as excessively contaminated soil.

Unless the established weight per unit volume of 1.4 tons/cubic yard (as referenced in FAC Rule 17-775) is used for the excavated soil, the weight per unit volume must be determined by a field test (in which an accurately measured volume of soil is weighed) at the time of excavation.

A. Volume of Contaminated Soil Excavated in Cubic Yards: 20. Dimensions Including Depth of Excavation(s):  
UNDERPIPING 8' deep X 4'X4'

NOTE: Attach written proof from the Department in the form of an Alternate Procedure Approval Order authorizing excavating over 1500 cubic yards if applicable. Authorization must be prior to the excavation of soils.

B. Type(s) of Product in Soil: UNLEADED GASOLINE

IV. SOIL TREATMENT AND DISPOSAL

A. Method of Treatment of Excessively Contaminated Soil: N/A

B. For Off Site Treatment and Disposal at Permitted STTF, Land Farms, or Landfills Attach Documentation From the Treatment Facility Which Confirms the Weight or Volume of Soil Treated and Date Received.

For Other Treatment and Disposal Methods (i.e. On-Site Land Farming, Bioremediation), Attach Post Treatment Laboratory Analyses for Each 250-300 Cubic Yards of Treated Soil in Accordance With Chapter 17-775.400 and the "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils", Edition February 1991 or Most Current Revision.

For Mobile Thermal Treatment Units, Attach Laboratory Analysis per Chapter 17-775(5), FAC.

C. Method of Disposal of Contaminated Soil and Indicate Recipient and Address: Springhill Landfill, 49<sup>th</sup> Hwy 273  
Graceville, FL 32440-0000

V. ADDITIONAL COMMENTS: \_\_\_\_\_

KEN THICKSTUN  
Person Completing Form

[Signature] Sept 30, 1995 CONTRACTOR  
Signature, Date Title, Affiliation  
FLA LIC # PCC049522

## TESTING AND CONTAMINATED SOIL CLEANUP

Thickstun Brothers Inc., used a 3rd party laboratory to field sample screen and provide laboratory test reports. Southern Earth Sciences Inc., of Panama City Florida did the testing (see attached sampling plan and test results.)

When sample location #B-14, and #B-19 indicated gasoline contamination the Navy then envolved a part of Thickstun Brothers Inc., contract to remove and dispose of any contamination up to 20 cube/yards. To safely excavate this close to a fiberglass tank, the tank had to be emptied of all fuel. (which took a while to accomplish.) On June 6, 1995 we excavated along the inner side of the 15,000 gallon tank and removed the necessary soil, stock-piled it at a diked, covered location untill it could be disposed of. Southern Waste Services removed the soil hauled it to the landfill where it was treated. See attached manifests.



Thickstun Brothers Equipment Company  
8411 Alton Avenue  
Columbus, OH 43219

May 10, 1995  
File No.: F-95-196

ATTENTION: Mr. Ken Thickstun

SUBJECT: Soil Screening for Upgrading Fueling System at Coastal  
Systems Station Building 362, Panama City, Florida

Dear Mr. Thickstun:

As requested, Southern Earth Sciences, Inc. has completed soil screening for upgrading the fuel delivery system at the Coastal Systems Station Building 362 in Panama City, Florida.

On May 2, 1995, personnel with our firm mobilized to the subject site with an organic vapor analysis (OVA) instrument with a flame ionization detector (FID). Soil samples were collected at each pump dispenser and along the underground lines and screened in the field using an OVA with and without a carbon filter. Field OVA data are reported in Table I. Sixteen (16) soil brings were performed along the underground piping lines to a depth of 2.0 feet below the bottom of the lines, every 20 feet. Three (3) soil borings were performed at the pump dispensers to a depth of 4.0 feet. This field testing was performed in accordance with Florida Chapter 62-770 and Comprehensive QA Plan #9200016 procedures.

Groundwater was encountered at a depth of 6.0 feet below existing grade on the date of our testing. Note: soil borings B-14 and B-19 had corrected OVA readings greater than 10 ppm.

Should additional information be required, please do not hesitate to contact us.

SOUTHERN EARTH SCIENCES, INC.

*Terry K Barnes* TCB

Terry K. Barnes  
Environmental Specialist

*Keith E. Sibley*

Keith E. Sibley, P.G.  
Professional Geologist  
Reg. No: 1366  
State of Florida

5-10-95

# TABLE 5.1: OVA FIELD DATA

## HEADSPACE ANALYSES

Site / Date U.S. NAVY BLD. 362 MAY / 2 / 95

Instrument type/ Serial # FOXBORO O.V.A. #128 SN 40920

Source of Sample 2' BELOW PIPE

Temperature PLUS 85°

PID Correlation 10 SCALE -5 = 50 ppm 5 on 100 SCALE = 500 ppm

SEE ATTACHED FIELD REPORTS

SAMPLE	DEPTH	PID	FID	METHANE	VOA

NOTES:

**SOIL INVESTIGATION RESULTS**  
**May 2, 1995**

LOCATION	DEPTH (FEET)	OVA W/OUT FILTER (PPM)	OVA W/ FILTER (PPM)	CORRECTED OVA (PPM)
*B-1	2'	0	0	0
	4'	0	0	0
*B-2	2'	0	0	0
	4'	0	0	0
*B-3	2'	0	0	0
	4'	0	0	0
B-4	1'	0	0	0
	2'	0	0	0
B-5	1'	0.1	0	0.1
	2'	0	0	0
B-6	1'	0	0	0
	2'	0	0	0
B-7	1'	0	0	0
	2'	0	0	0
B-8	1'	0.1	0	0.1
	2'	0.1	0	0.1
B-9	1'	0	0	0
	2'	0	0	0
B-10	1'	0	0	0
	2'	0	0	0
B-11	1'	0.4	0	0.4
	2'	0	0	0
B-12	1'	0	0	0
	2'	0	0	0
B-13	1'	0	0	0
	2'	0	0	0
B-14	1'	100	0	100
	2'	150	0	150
B-15	1'	0.6	0	0.6
	2'	0	0	0
B-16	1'	0	0	0
	2'	0	0	0
B-17	1'	0	0	0
	2'	0	0	0



LOCATION	DEPTH (FEET)	OVA W/OUT FILTER (PPM)	OVA W/ FILTER (PPM)	CORRECTED OVA (PPM)
B-18	1'	0	0	0
	2'	0	0	0
B-19	1'	340	0	340
	4'	190	0	190

\* Sample locations were under fuel dispensers

PPM = Parts per million

Water Table = 6.0 feet below existing grade on the date of our testing

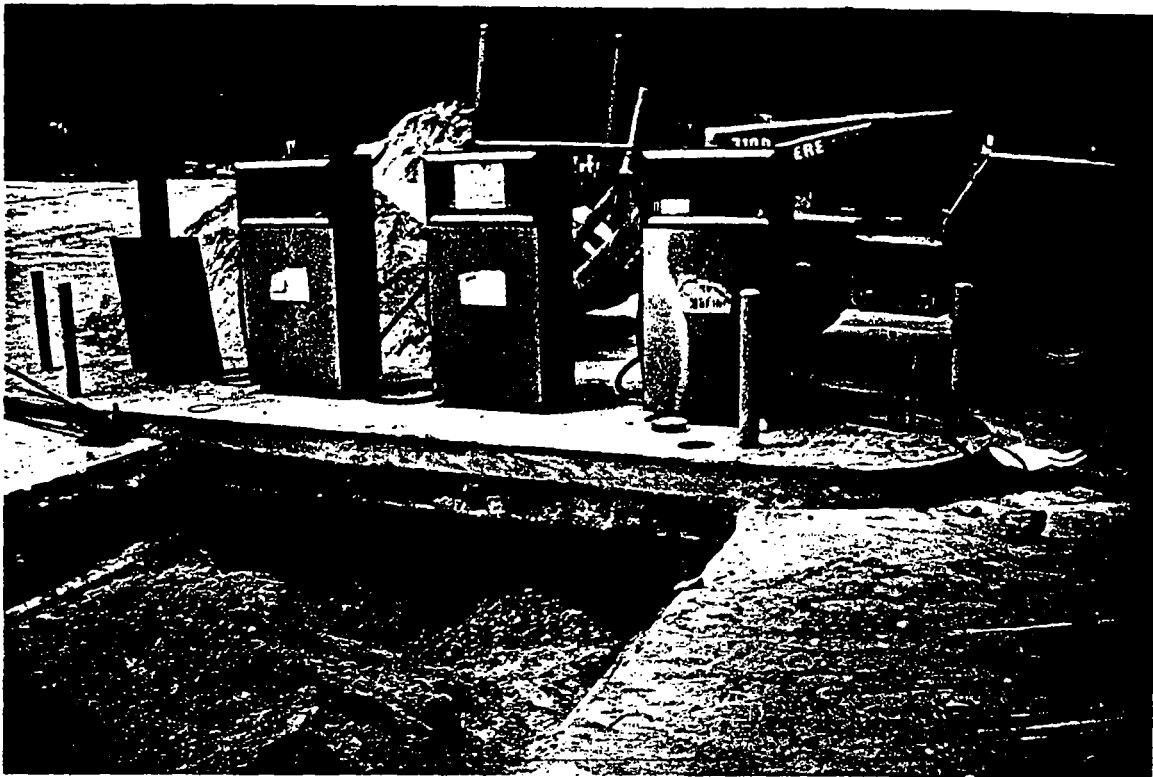




VIEW OF FUELING LINES



VIEW OF SOIL BORING # 14



VIEW OF PUMP DISPENSERS



VIEW OF FUELING LINES

**SOIL TESTING FOR  
CSS BUILDING 362  
PANAMA CITY, FLORIDA**

**JUNE 6, 1995**

**RETEST OF UNDERLINES**

TABLE I  
CSS BUILDING 362  
IRA AT UNLEADED TANK #4  
June 6, 1995

LOCATION	DEPTH (FEET)	OVA W/OUT FILTER (PPM)	OVA W/FILTER (PPM)	CORRECTED OVA (PPM)
B-1	6	220.0	0	220.0
	8	100.0	0	100.0
B-2	6	48.0	0	48.0
B-3	3	20.0	0	20.0
	6	76.0	0	76.0
B-4	4	0	0	0
B-5	3	4.4	0	4.4
B-6	3	68.0	0	68.0
	6	200.0	0	200.0
B-7	3	30.0	0	30.0
B-8	7	>1000	0	>1000

PPM = Parts Per Million



**Pipe-Valves, Inc.**

STEEL-STAINLESS STEEL-PVC-COPPER

OFFICE 614-294-4971 • FAX 614-294-3835

885 W. 5th AVE.

COLUMBUS, OHIO 43212

From: 1 904-555-1212  
To: 872-3021 City Clerk

NC  
Naval Coastal Systems  
City Clerks office said it was  
outside city limits so license  
was not needed.

3/14/95

**CITY OF PANAMA CITY  
OCCUPATIONAL LICENSE**

LICENSE NO.

940737

THICKSTUN BROTHERS EQUIPMENT CO., INC.  
841 ALTON AV

LOCATION OF BUSINESS

EXPIRES 09/30/94

CLASS	DESCRIPTION	LICENSE AMOUNT
OMISC		50.00

POST THIS LICENSE IN A CONSPICUOUS  
PLACE AT YOUR BUSINESS LOCATION

THICKSTUN BROTHERS EQUIPMENT CO., INC.  
KENNETH L. THICKSTUN  
841 ALTON AV  
COLUMBUS OH 43219

GIRARD L. CLEMONS JR  
MAYOR

MICHAEL BUSH  
CITY CLERK

NOT TRANSFERABLE FROM LOCATION SHOWN ABOVE

AC# 2777511

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION  
CONST INDUSTRY LICENSING BOARD

DATE	LICENSE NO.	BATCH NO.
07/16/94	PC C049522	94900083

THE CERT POLLUTANT STORAGE BYS CONTR  
NAMED BELOW IS CERTIFIED  
UNDER THE PROVISIONS OF CHAPTER 489  
EXPIRING AUG 31, 1996.

F.S., FOR THE YEAR

THICKSTUN, STEVEN MICHAEL  
THICKSTUN BROS EQUIP CO INC  
841 ALTON AVE  
COLUMBUS OH 43219

*Lawton Chiles*  
LAWTON CHILES  
GOVERNOR

DISPLAY IN A CONSPICUOUS PLACE

*George Stuart, Jr.*  
GEORGE STUART, JR.  
SECRETARY, D.B.P.R.



# Storage Tank Registration Form

Please Print or Type - Review Instructions Before Completing Form

1. DER Facility ID Number: 038518667 2. Facility Type: (F) Federal
3. New Registration ☐ New Owner Data ☐ Facility Revision ☐ Tank(s) Revision ☒
4. County and Code of tank(s) location: BAY / 03

5. Facility Name: Coastal Systems Station
- Tank(s) Address: 6703 West Hwy 98
- City/State/Zip: Panama City FL 32407-7001
- Contact Person: Mike Clayton Code 0511 Telephone: (904) 235-5859
6. Financial Responsibility Type: C

- 7a. Tank(s) Owner: U. S. Navy (Coastal Systems Station)
- Owner Mailing Address: 6703 West Hwy 98
- City/State/Zip: Panama City FL 32407-7001
- Contact Person: Mike Clayton Telephone: (904) 235-5859

- 7b. New Owner Signature/Change Date: N/A / / /

8. Location (optional) Latitude: ° ' " Longitude: ° ' " Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_

Complete One Line For Each Tank At This Facility (Use Codes - See Instructions)

Complete 9 - 16 for tanks in use; 9 - 19 for tanks out of use

9	10	11	12	13	14	15	16	17	18	19
G129	550	G	xx/79	U	CMN	B	X			9/95
362-A	12000	F	xx/81	U	EMN	CFIJK	BK			9/95
362-B	12000	D	xx/81	U	EMN	CFIJK	BK			9/95
362-C	12000	F	xx/81	U	EMN	CFIJK	BK			9/95
362-D	12000	B	xx/81	U	EMN	CFIJK	BK			9/95

20. Thickstun Bros, Inc DPR# PCC 049522  
Certified Contractor\* Department of Professional Regulation License Number

\*For new tank installation or tank removal

best of my knowledge and belief all information submitted on this form is true, accurate and complete.

W. A. OSTER, PWO OFFICER

Print name &amp; title of owner or authorized person

Signature

Date

Northwest District  
160 Governmental Center  
Panama City, Florida 32401-5754  
904 435 8300

Northeast District  
7625 Raymeadows Way, Suite B 203  
Jacksonville, Florida 32207  
904 738-4200

Central District  
3319 Maguire Blvd, Suite 202  
Orlando, Florida 32803-3707  
407 854-7155

Southwest District  
4520 Oak Fair Blvd.  
Tampa, Florida 33610-7347  
813 623 5561

South District  
2269 Bay St.  
Fort Myers, Florida 33901-2878  
813 332-6975

Southeast District  
1900 S. Congress Ave., Suite A  
West Palm Beach, Florida 33411  
407 433 7650



## Underground Storage Tank Installation and Removal Form For Certified Contractors

Pollutant Storage System Specialty Contractors as defined in Section 409.113, Florida Statutes (Certified contractors as defined in Section 17-781.2 Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the storage tank system(s) local at the address listed below was performed in accordance with Department Reference Standards.

### General Facility Information

- DER Facility Identification No.: 03-8518667
- Facility Name: U.S. NAVAL COASTAL SYSTEM Telephone: (904) 234-4764
- Street Address (physical location): 6703 W. HIGHWAY 98 BUILDING 367  
PANAMA CITY, FLORIDA 32407-7001
- Owner Name: U.S. NAVY Telephone: ( ) SAME
- Owner Address: SAME
- Number of Tanks: 4 a. Installed at this time 0 b. Removed at this time 0
- Tank(s) Manufactured by: OWENS CORNING
- Date Work Initiated: APRIL 1995 8. Date Work Completed: SEPT 15, 1995

### PIPING REPLACEMENT ONLY

### Underground Pollutant Tank Installation Checklist

Please certify the completion of the following installation requirements by placing an (X) in the appropriate box.

- The tanks and piping are corrosion resistant and approved for use by State and Federal Laws.
- Excavation, backfill and compaction completed in accordance with NFPA (National Fire Protection Association) 30(87), API (American Petroleum Institute) 1615, PEI (Petroleum Equipment Institute) RP100-87 and the manufacturers' specifications.
- ~~Tanks and~~ piping protected and installed in accordance with NFPA 30(87), API 1615, PEI/RP100(87) and the manufacturers' specifications.
- Steel tanks and piping are cathodically protected in accordance with NFPA 30(87), API 1632, UL (Underwriters Laboratory) 1748, STI (Steel Tank Institute) R882-88 and the manufacturer's specifications.
- Tanks and piping tested for tightness after installation in accordance with NFPA 30(87) and PEI/RP100-87.
- Monitoring well(s) or other leak detection devices installed and tested in accordance with Section 17-781.540, Florida Administrative Code (F.A.C.)
- Spill and overflow protection devices installed in accordance with Section 17-781.500, F.A.C.
- Secondary containment installed for ~~tanks and~~ piping as applicable in accordance with Section 17-781.500, F.A.C.

Please Note: The numbers following the abbreviations (e.g. API 1615) are publication or specification numbers issued by these institut

### Underground Pollutant Tank Removal Checklist

- Closure assessment performed in accordance with Section 17-781.800, F.A.C.
- Underground tank removed and disposed of as specified in API 1604 in accordance with Section 17-781.800, F.A.C.

## Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Regulation; that to the best of my knowledge and belief, the tank installation, replacement or removal at this facility was conducted in accordance with Chapter 480 and Section 376.303, Florida Statutes and Chapter 17-781, Florida Administrative Code (and its adopted reference sources from publications and standards of the National Fire Protection Association (NFPA), the American Petroleum Institute (API), the National Association of Corrosion Engineers (NACE), American Society for Testing and Materials (ASTM), Petroleum Equipment Institute (PEI), Steel Tank Institute (STI), Underwriters Laboratory (UL); and the tank and integral piping manufacturers' specifications; and that the operations on the checklist were performed accordingly.

THICKSTUN BROTHERS EQUIPMENT COMPANY, INCORP.,

PC-C049527

(Type or Print)  
Certified Pollutant Tank Contractor Name  
Pollutant Storage System Specialty Contractor License Number (PSSSC)

PSSSC Number

*Ben Thickstun*

Certified Tank Contractor Signature

AUGUST 12, 1995

Date

DONALD McCURDY

(Type or Print)  
Field Supervisor Name

AUGUST 12, 1995

Date

Field Supervisor Signature

Date

The owner or operator of the facility must register the tanks with the Department at least 10 days before the installation. The installer must submit this form no more than 30 days after the completion of installation to the Department of Environmental Regulation at the address printed at the top of page one.

**CITY OF PANAMA CITY  
OCCUPATIONAL LICENSE**

LICENSE NO.

940737

THICKSTON BROTHERS EQUIPMENT CO., INC.  
841 ALTON AV

LOCATION OF BUSINESS

EXPIRES 09/30/94

CLASS	DESCRIPTION	LICENSE AMOUNT
OMISC		50.00

POST THIS LICENSE IN A CONSPICUOUS  
PLACE AT YOUR BUSINESS LOCATION

THICKSTON BROTHERS EQUIPMENT CO., INC.  
KENNETH L. THICKSTON  
841 ALTON AV  
COLUMBUS OH 43219

GIRARD L. CLEMONS JR  
MAYOR

MICHAEL BUSH  
CITY CLERK

NOT TRANSFERABLE FROM LOCATION SHOWN ABOVE

AC# 2777511 STATE OF FLORIDA  
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION  
CONST INDUSTRY LICENSING BOARD

DATE	LICENSE NO.	BATCH NO.
07/16/94	PC C049522	94900083

THE CERT POLLUTANT STORAGE SYS CONTR  
NAMED BELOW IS CERTIFIED  
UNDER THE PROVISIONS OF CHAPTER 489  
EXPIRING AUG 31, 1994

F.S., FOR THE YEAR

THICKSTON, STEVEN MICHAEL  
THICKSTON BROS EQUIP CO INC  
841 ALTON AVE  
COLUMBUS OH 43219

*Lawton Chiles*  
LAWTON CHILES  
GOVERNOR

DISPLAY IN A CONSPICUOUS PLACE

*George Stunt Jr.*  
GEORGE STUNT, JR.  
SECRETARY, D.B.P.R.



**Pipe-Valves, Inc.**

STEEL - STAINLESS STEEL - PVC - COPPER

OFFICE 614-294-4971 • FAX 614-294-3835

885 W. 5th AVE.

COLUMBUS, OHIO 43212

From: 1 904-555-1212  
To: 872-3021 City Clerk

NC  
Naval Coastal Systems  
City Clerks office said it was  
outside city limits so license  
was not needed.

2/14/95



# GENERATOR'S WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

Waste Profile Sheet Code



WMNA 065313

This form is to be used to comply with the requirements of a waste agreement.

INSTRUCTIONS FOR COMPLETING THIS FORM ARE ATTACHED

Shaded Areas For Contractor Use Only)

Decision Expiration Date:

1 1

Contractor Sales Rep#:

Service Agr. Renewal Date:

1 1

## A. WASTE GENERATOR INFORMATION

1. Generator Name: Thickston Bros Equip Co. 2. SIC Code: \_\_\_\_\_  
3. Facility Address (site of waste generation): NCSC P.C. Bldg Fl B-362  
4. Generator City, State/Province: 841 Alton Ave Columbus OH 43219 5. Zip/Postal Code: 43219  
6. Generator USEPA/Federal ID #: 3109 63 5101 7. State/Province ID #: OHIO  
8. Technical Contact: Don McCurdy 9. Phone: (614) 252-8422

## B. WASTE STREAM INFORMATION (See Instructions)

1. Name of Waste: oil water separator over flow 2. SIC Code: 904-235-3606  
3. Annual Amount/Units: N/A 4. Type A ☒ Type B ☐  
5. Special Handling Instructions/Supplemental Information: N/A

3. Incidental Waste Types and Amounts: oil soil 20 id

## C. TRANSPORTATION INFORMATION

1. Method of Shipment: ☐ Bulk Liquid ☐ Bulk Sludge ☒ Bulk Solid ☐ Drum/Box ☐ Other \_\_\_\_\_  
2. Supplemental Shipping Information: \_\_\_\_\_

this a DOT hazardous material? ☒ No ☐ Yes (If yes, complete 4, 5 & 6)

4. Hazard Class/ID #: \_\_\_\_\_

5. Reportable Quantity/Units (lb/kg): \_\_\_\_\_

6. Shipping Name: \_\_\_\_\_

## D. TECHNICAL MANAGER DECISION (Check One) ☐ APPROVED ☐ DISAPPROVED ☐ Check if additional information is attached

If Disapproved, Explain: \_\_\_\_\_

If Approved, Continue: \_\_\_\_\_

1. Management Method(s): \_\_\_\_\_

2. Precautions, Conditions, or Limitations on Approval: \_\_\_\_\_

3. For Type A Wastes, Laboratory Analysis of a Representative Sample Was: \_\_\_\_\_

☐ Waived

☐ Attached

If waived, explain why: \_\_\_\_\_

4. List Non-WMI Facility that is Approved to Manage this Waste: \_\_\_\_\_

Date: \_\_\_\_\_

Tech. Mgr. Signature: \_\_\_\_\_

Name (Print): \_\_\_\_\_

Date: \_\_\_\_\_

## E. MANAGEMENT FACILITY INFORMATION / DECISION

1. Proposed Management Facility: \_\_\_\_\_

2. Proposed Intermediate Transfer Facility: \_\_\_\_\_

3. Transporter: \_\_\_\_\_

4. Management Facility Gen. Mgr. Decision (Check One) ☐ APPROVED ☐ DISAPPROVED

If Disapproved, Explain: \_\_\_\_\_

If Approved, List \_\_\_\_\_

Precautions, Conditions, or \_\_\_\_\_

Limitations on Approval: \_\_\_\_\_

General Mgr. Signature: \_\_\_\_\_

Name (Print): \_\_\_\_\_

Date: \_\_\_\_\_

Turn Page and Complete Side 2 (If Type B Special Waste, only complete Part J of Side 2)



# GENERATOR'S WASTE PROFILE SHEET

PLEASE PRINT IN INK OR TYPE

## F. PHYSICAL CHARACTERISTICS OF WASTE (See Instructions)

1. Color <u>Brown.</u>	2. Does the waste have a strong incidental odor? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes; if so, describe: _____	3. Physical State @ 70 F/21°C: <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Semi-Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Powder <input type="checkbox"/> Other: _____	4. Layers <input type="checkbox"/> Multi-layered <input type="checkbox"/> Bi-layered <input checked="" type="checkbox"/> Single Phased	5. Specific Gravity Range _____	6. Free Liquids: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Volume: _____
7. pH: <input type="checkbox"/> ≤2 <input type="checkbox"/> > 2-4 <input type="checkbox"/> 4-7 <input checked="" type="checkbox"/> 7 <input type="checkbox"/> 7-10 <input type="checkbox"/> 10- <12.5 <input type="checkbox"/> ≥12.5 <input type="checkbox"/> Range <input type="checkbox"/> NA					
8. Flash Point: <input type="checkbox"/> None <input type="checkbox"/> <140°F/60°C <input type="checkbox"/> 140 - 199°F/60 - 93°C <input type="checkbox"/> ≥200°F/93°C <input type="checkbox"/> Closed Cup <input type="checkbox"/> Open Cup					

## G. CHEMICAL COMPOSITION

1. <u>Analytical. Attached</u>	RANGE (MIN-MAX)	2. Does the waste contain any of the following? (provide concentration if known):
_____	_____ %	NO or LESS THAN or ACTUAL
_____	_____ %	PCBs <input checked="" type="checkbox"/> <input type="checkbox"/> < 50 ppm _____ ppm
_____	_____ %	Cyanides <input checked="" type="checkbox"/> <input type="checkbox"/> < 30 ppm _____ ppm
_____	_____ %	Sulfides <input checked="" type="checkbox"/> <input type="checkbox"/> < 500 ppm _____ ppm
_____	_____ %	
_____	_____ %	
_____	_____ %	
_____	_____ %	
_____	_____ %	
Total:	_____ %	

Please note: Unless analytical results are attached, the chemical composition identification should include, at a minimum, Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Pesticides, Herbicides, and any other TCLP constituents that may be present in the waste. The total composition must be greater than or equal to 100%. (.0001% = 1 ppm or 1 mg/l)

3. Indicate method used to determine composition (if provided): ☒ TCLP ☐ Total ☐ Other: \_\_\_\_\_

## H. SAMPLING SOURCE (e.g., Drum, Lagoon, Pit, Pond, Tank, Vat)

### I. REPRESENTATIVE SAMPLE CERTIFICATION

1. Print Sampler's Name: <u>Don McCurdy</u>	2. Sample Date: <u>6-27-95</u>
3. Sampler's Title: <u>Superintendent</u>	
4. Sampler's Employer (if other than Generator): <u>THICKSTON BROS EQUIP CO.</u>	
The sampler's signature certifies that any sample submitted is representative of the waste described above pursuant to 40 CFR 261.20(c) or equivalent rules.	
5. Sampler's Signature: <u>Don McCurdy</u>	

### J. GENERATOR CERTIFICATION

By signing this profile sheet, the Generator certifies:

1. This waste is not a "Hazardous Waste" as defined by USEPA or Canadian Federal regulation and/or the state/province.
2. This waste does not contain regulated radioactive materials or regulated concentrations of PCB's (Polychlorinated Biphenyls).
3. The unshaded portions of this sheet and the attachments contain true and accurate descriptions of the waste material. All relevant information regarding known or suspected hazards in the possession of the Generator has been disclosed.
4. The Generator has read and understands the Contractor's Definition of Special Waste included in Part B.5. of the attached instructions form. All types and amounts of special wastes provided in incidental amounts have been identified in section B.6. of this form.
5. The analytical data presented herein or attached hereto were derived from testing a representative sample taken in accordance with 40 CFR 261.20(c) or equivalent rules.

If any changes occur in the character of the waste, the Generator shall notify the Contractor prior to providing the waste to the Contractor

7. Signature: <u>Don McCurdy</u>	8. Title: <u>Superintendent</u>
9. Name (Type or Print): <u>Don McCurdy</u>	10. Date: <u>7-24-95</u>

# CHEMSOLVE

environmental analytical services

11629 Manchaca Road • Austin, Texas 78748 • (512) 280-7680

To: Harry Marsh, Jr.  
Southern Waste Service  
1619 Moylan Road  
Panama City, FL 32407

904-234-2451

Report #: 15199

## Report of Laboratory Analysis

Project: Thirston Bro. P.C. Navy Base

Sample: 01 T.T.

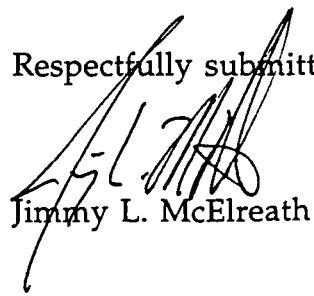
Matrix: waste

Date/Time Taken: 6/27/95 16:50

Date/Time Rec'd: 6/28/95 10:10

Parameter	Result	Units	Limit	PQL	Method	Date/Time	Run	By
TC Arsenic	<0.05	mg/L	5	0.05	7061	7/6/95	13:52	JLM
TC Barium	<0.01	mg/L	100	0.01	7080	7/6/95	13:52	JLM
TC Cadmium	<0.005	mg/L	1	0.005	7130	7/6/95	13:52	JLM
TC Chromium	<0.01	mg/L	5	0.01	7190	7/6/95	13:52	JLM
TC Lead	<0.02	mg/L	5	0.02	7420	7/6/95	13:52	JLM
TC Mercury	0.00040	mg/L	0.2	0.0002	7470	6/29/95	13:42	KLR
TC Selenium	<0.05	mg/L	1	0.05	7741	7/6/95	13:52	JLM
TC Silver	<0.01	mg/L	5	0.01	7760	7/6/95	13:52	JLM
TC 1,1-dichloroethene	<0.005	mg/L	0.7	0.005	8240	6/29/95	11:59	MGB
TC 1,2-dichloroethane	<0.005	mg/L	0.5	0.005	8240	6/29/95	11:59	MGB
TC 1,4-dichlorobenzene	<0.005	mg/L	7.5	0.005	8240	6/29/95	11:59	MGB
TC 2-butanone (MEK)	<0.1	mg/L	200	0.1	8240	6/29/95	11:59	MGB
TC Benzene	<0.005	mg/L	0.5	0.005	8240	6/29/95	11:59	MGB
TC Carbon tetrachloride	<0.005	mg/L	0.5	0.005	8240	6/29/95	11:59	MGB
TC Chlorobenzene	<0.005	mg/L	100	0.005	8240	6/29/95	11:59	MGB
TC Chloroform	<0.005	mg/L	6	0.005	8240	6/29/95	11:59	MGB
TC Tetrachloroethene	<0.005	mg/L	0.7	0.005	8240	6/29/95	11:59	MGB
TC Trichloroethene	<0.005	mg/L	0.5	0.005	8240	6/29/95	11:59	MGB
TC Vinyl chloride	<0.01	mg/L	0.2	0.01	8240	6/29/95	11:59	MGB

Respectfully submitted,

  
Jimmy L. McElreath

# CHEMSOLVE

environmental analytical services

11629 Manchaca Road • Austin, Texas 78748 • (512) 280-7680

**Project:** Thirston Bro. P.C. Navy Base

**Report #:** 15199

**Sample:** 01 T.T.

## Report of Laboratory Quality Assurance

Parameter	Blank	Precision	Limit	M.S.	M.S.D.	Limits
TC Arsenic	<0.05	1.20	20	84.0	82	80 - 125
TC Barium	<0.01	1.19	20	83.0	85	80 - 125
TC Cadmium	<0.005	0.00	20	87.0	87	80 - 125
TC Chromium	<0.01	0.49	20	103.0	104	80 - 125
TC Lead	<0.02	0.95	20	97.1	99	80 - 125
TC Mercury	<0.0002	2.80	14.74	107.8	110.5	74.2 - 129.5
TC Selenium	<0.05	1.78	20	83.0	86	80 - 125
TC Silver	<0.01	0.62	20	80.0	81	80 - 125

Surrogate	Method	Recovery	Limits
Toluene-d8	8240B	107	85-115
Bromofluorobenzene	8240B	111	86-115
1,2-dichloroethane-d4	8240B	108	76-114

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PQL - Practical quantification limit. M.S. - Matrix spike. M.S.D. - Matrix spike duplicate

# NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest  
Document No.

2. Page 1  
of

Profile #  
065313

3. Generator's Name and Mailing Address  
Thickston Bros. Equip. Co.  
841 Alton Ave. Columbus OH.

Contact Don McCurdy

4. Generator's Phone (614) 252-8422 ZIP 43219

5. Transporter 1 Company Name

Southern Waste Inc

6. US EPA ID Number

17.L00009.3683.1

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address

Spring Hill Landfill  
Gainesville FL

10. US EPA ID Number

A. Transporter's Phone 904-234-3174

B. Transporter's Phone

C. Facility's Phone

904-263-7100

11. Waste Shipping Name and Description

Truck # 57

12. Containers

No. Type

13. Total  
Quantity

14. Unit  
Wt/Vol

a.

Cent Soil

18.11

1

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

N/A

E. Handling Codes for Wastes Listed Above

N/A

15. Special Handling Instructions and Additional Information

N/A

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

Don McCurdy

Signature

Don McCurdy

Month Day Year

17 12 89

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Michael T. Vinton

Signature

Michael T. Vinton

Month Day Year

12 28 93

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

000000

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Garrett Moss

Signature

Garrett Moss

Month Day Year

2 28 95

ORIGINAL - RETURN TO GENERATOR

Printed on recycled paper

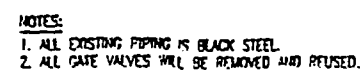
7043031

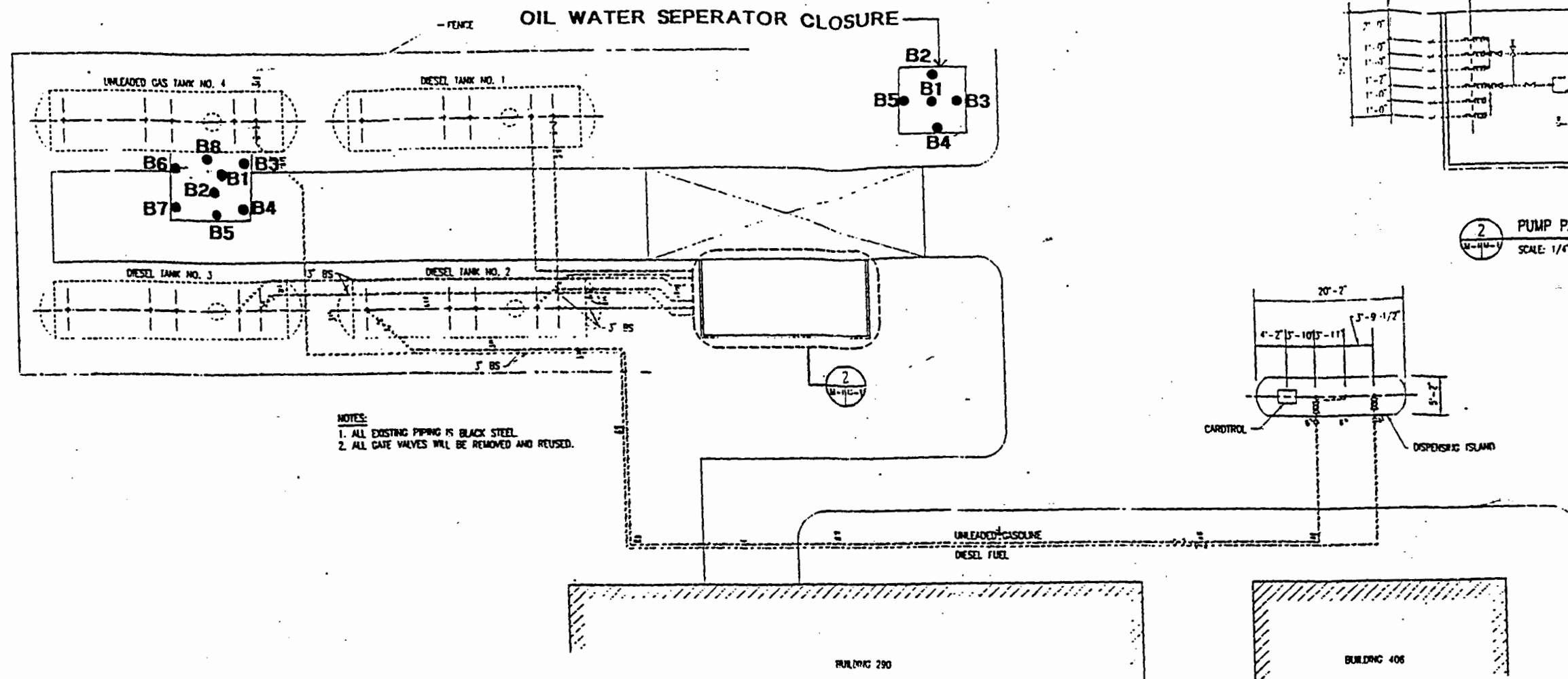
Page: 21 of 21

ORIGINAL

ADJUSTED LBS : 36,220.00

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
318 -CONTAMINATED SOIL	18.11	TONE		





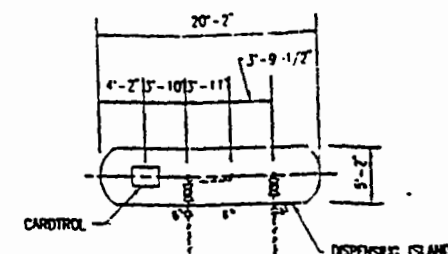
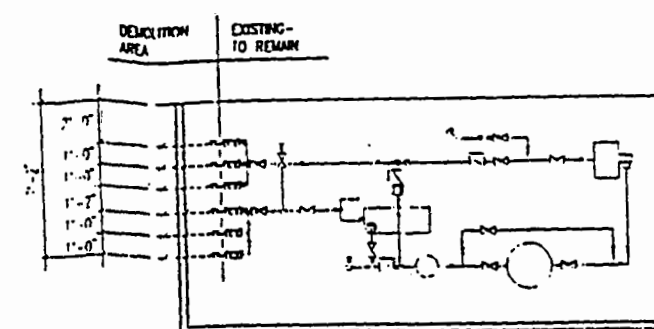
**FACILITY NO. 362 - DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"

**LEGEND:**

---	DEMOLISH AND REMOVE
---	EXISTING PIPING/EQUIPMENT (AC)
---	EXISTING PIPING/EQUIPMENT (UC)
---	NEW PIPING/EQUIPMENT (AC)
---	NEW PIPING/EQUIPMENT (UC)
⊗	GATE VALVE
⊙	BALL VALVE
—	RUBBER BOOT W/CLAMPING COLLAR

**ABBREVIATIONS:**

AG	ABOVEGROUND
BS	BLACK STEEL
DWRP	DOUBLE WALL FIBERGLASS REINFORCED PLASTIC
FRP	FIBERGLASS REINFORCED PLASTIC
LP	LOW POINT
SS	STAINLESS STEEL
UC	UNDERGROUND



**Robert and Company**  
Engineering, Drafting, & Surveying  
18000 Highway 100, Suite 100, Houston, TX 77058  
409 577-4000 FAX 409 577-1111  
RAC PROJECT NUMBER: 93016-04

COASTAL SYSTEMS STATION

UPGRADING FUELING SYSTEM AT FACILITY 277 & 362  
AND MISCELLANEOUS PUMP UPGRADES  
FACILITY 362 - DEMOLITION PLAN

DATE: 6-17-11  
BY: M-1  
CHECKED: M-1  
APPROVED: M-1

**APPENDIX D**

**RECORDS OF TANK TIGHTNESS TESTS**



**Clemens Fuel Systems, Inc.**

13807 Fiddlers Green Rd.  
Southport, Florida 32409  
(904) 265-8881  
FL. LIC. NO. RQ0058606

The system used for testing is the 'EZY CHEK III VACUUM' Leak Detection System. This system was designed to meet the USEPA requirements and is capable of detecting a leak rate of .1 gallon per hour. This criteria of .1 gallon per hour is not to be construed as a permissible leak rate. Rather an accuracy tolerance of the testing equipment and allows for the variables involved. We assume no responsibility for any product leakage.

## PRECISION TESTING RESULTS

COMPANY NAME \_\_\_\_\_  
CONTACT \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY, STATE \_\_\_\_\_  
TELEPHONE \_\_\_\_\_  
TANK OWNER \_\_\_\_\_  
CONTACT \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY, STATE \_\_\_\_\_  
TELEPHONE \_\_\_\_\_  
REMARKS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

TANK FARM LOCATION NCSC  
STORE # Site #362  
ADDRESS \_\_\_\_\_  
CITY, STATE \_\_\_\_\_  
TELEPHONE \_\_\_\_\_  
OPERATOR Robert VanHorn FL0031  
DATE 8/9/95 - 8/10/95  
CONDITION: Testing after upgrade of tanks and  
lines.  
\_\_\_\_\_

TANK#	CAPACITY	PRODUCT IN TANK WHEN TESTED	TYPE OF SYSTEM SUBSUCTION	WATER IN TANK	TANK DIAMETER	INCHES OF PRODUCT IN TANK	DEPTH OF GROUND WATER	TIME TEST START	TIME TEST ENDED	THRESHOLD VALUE	TEST RESULTS	ACCEPTABLE UNACCEPTABLE
(362-C) 3	11,627	J P 5	Sub.	0"	92"	77"	----	8:47	10:45	-1.0"	-.9"	Acceptable
(362-B) 2	11,627	Diesel	Sub.	0"	92"	77"	----	10:55	13:00	-1.0"	-.9"	Acceptable
(362-D) 4	11,627	Regular	Sub.	0"	92"	75.5"	----	12:00	15:25	-9.0"	-7.8"	Acceptable
(362-A) 1	11,627	J P 5	Sub.	0"	92"	76.5'	----	8:23	9:55	-1.0"	-.9"	Acceptable

**APPENDIX E**  
**SOIL BORING LOGS**

# BROWN & ROOT ENVIRONMENTAL

## LOG OF BORING

SHEET 1 OF 1

LOCATION OF BORING:

*See Soil Boring Location Map*

PROJECT: CTD 0008  
Site 362

BORING NO. SBO 1

TOTAL DEPTH: 9'

JOB NO. 7113

LOGGED BY: G. Goode

PROJ.MGR: G. Goode

EDITED BY: G. Goode

DRILLING CONTRACTOR: N/A

DRILL RIG TYPE: N/A

DRILLER'S NAME: N/A

SAMPLING METHODS: Hand Auger

STARTED TIME: 12:30

DATE: 6/15/96

COMPLETED TIME: 12:55

DATE: 6/15/96

BORING DEPTH (ft.)

CASING DEPTH (ft.) N/A

WATER DEPTH (ft.)

SAMPLE DEPTH	SAMPLER TYPE	BLOWS/6-IN.	INCHES DRIVEN	INCHES RECOVERED	MOISTURE	ODOR	UNFILTERED OVA (PPM)	FILTERED OVA (PPM)	CORRECTED OVA (PPM)	DEPTH IN FEET	USCS CODE
1										1	
2	HA	-	-	-	dry	-	NO	NS	NO	2	SP
3										3	
4	HA	-	-	-	dry	-	NO	NS	NO	4	SP
5										5	
6	HA	-	-	-	moist	-	2	NO	2	6	SP
7										7	
8	HA	-	-	-	wet	-	2	NO	2	8	SP
9										9	

ND = NO ORGANIC VAPORS DETECTED

NS = NO CARBON FILTERED SAMPLE READ

SOIL/SEDIMENT DESCRIPTION

Sand, light brown, fine to medium grained quartz, less than 5% fines, loose, dry

Sand, light brown, as above

Sand, yellowish orange, fine to medium grained quartz, less than 5% fines, loose, moist

Sand, light brown, fine to medium grained quartz, less than 5% fines, loose, wet at 8.5'

# BROWN & ROOT ENVIRONMENTAL

## LOG OF BORING

SHEET 1 OF 1

LOCATION OF BORING:  <i>See Soil Boring location Map</i>	PROJECT: CTO 0008 <i>Site 362</i>		BORING NO. SB02
			TOTAL DEPTH: 9'
	JOB NO. 7113	LOGGED BY: G. Goode	
	PROJ.MGR: G. Goode	EDITED BY: G. Goode	
	DRILLING CONTRACTOR: NA		
	DRILL RIG TYPE: NA		
	DRILLER'S NAME: NA		
	SAMPLING METHODS: Hand Auger		
	STARTED TIME: 13:10	DATE: 6/15/96	
	COMPLETED TIME: 13:30	DATE: 6/15/96	
BORING DEPTH (ft.) 9'			
CASING DEPTH (ft.) NA			
WATER DEPTH (ft.) -			

SAMPLE DEPTH	SAMPLER TYPE	BLOWS/6-IN.	INCHES DRIVEN	INCHES RECOVERED	MOISTURE	ODOR	UNFILTERED OVA (PPM)	FILTERED OVA (PPM)	CORRECTED OVA (PPM)	DEPTH IN FEET	USCS CODE	SOIL/SEDIMENT DESCRIPTION
1										1		
2	HA	-	-	-	Dry	-	ND	NS	ND	2	X SP	Sand, light brown, Fine to medium grained quartz, less than 5% fines, loose, dry
3										3	X	
4	HA	-	-	-	Dry	-	4	ND	4	4	X SP	Sand, yellowish orange, Fine to medium grained quartz, less than 5% fines, loose dry
5										5	X	
6	HA	-	-	-	moist	-	4	ND	4	6	X SP	Sand, light brown, Fine to medium grained quartz, less than 5% fines, loose, moist
7										7	X	
8	HA	-	-	-	wet	-	5	ND	5	8	X SP	Sand, light brown, Fine to medium grained, less than 5% fines, loose, wet at 8.5'
9										9	X	

ND = NO ORGANIC VAPORS DETECTED  
NS = NO CARBON FILTERED SAMPLE READ

SOIL/SEDIMENT DESCRIPTION

# BROWN & ROOT ENVIRONMENTAL

## LOG OF BORING

SHEET 1 OF 1

LOCATION OF BORING:  <i>See Soil Boring location Map</i>	PROJECT: CTO 0008 Site 362		BORING NO. 5803
	JOB NO. 7113		TOTAL DEPTH: 9'
	PROJ.MGR: G. Goode		LOGGED BY: G. Goode
	DRILLING CONTRACTOR: NA		EDITED BY: G. Goode
	DRILL RIG TYPE: NA		
	DRILLER'S NAME: NA		
	SAMPLING METHODS: Hand Auger		
	STARTED TIME: 13:40		DATE: 6/15/96
	COMPLETED TIME: 13:55		DATE: 6/15/96
	BORING DEPTH (ft.): 9'		
CASING DEPTH (ft.): NA			
WATER DEPTH (ft.): -			

SAMPLE DEPTH	SAMPLER TYPE	BLOWS/6-IN.	INCHES DRIVEN	INCHES RECOVERED	MOISTURE	ODOR	UNFILTERED OVA (PPM)	FILTERED OVA (PPM)	CORRECTED OVA (PPM)	DEPTH IN FEET	USCS CODE	
1										1		
2	HA	-	-	-	DM	-	ND	NS	ND	2	SP	Sand, light brown, fine to medium grained quartz, less than 5% fines, loose, dry
3										3	SP	
4	HA	-	-	-	DM	-	ND	NS	ND	4	SP	Sand, yellowish orange, fine to medium grained quartz, less than 5% fines, loose, dry
5										5	SP	
6	HA	-	-	-	moist	-	2	ND	2	6	SP	Sand, yellowish orange, as above
7										7	SP	
8	HA	-	-	-	wet	-	4	ND	4	8	SP	Sand, light brown, fine to medium grained quartz, less than 5% fines, loose, wet at 8.5'
9										9	SP	

ND = NO ORGANIC VAPORS DETECTED  
NS = NO CARBON FILTERED SAMPLE READ

SOIL/SEDIMENT DESCRIPTION

# BROWN & ROOT ENVIRONMENTAL

## LOG OF BORING

SHEET 1 OF 1 =

LOCATION OF BORING:  <i>See Soil Boring location Map</i>	PROJECT: .CTO 0008 <i>Site 362</i>		BORING NO. <i>SB04</i>
			TOTAL DEPTH: <i>9'</i>
	JOB NO. <i>7113</i>	LOGGED BY: <i>G. Goode</i>	
	PROJ.MGR: <i>G. Goode</i>	EDITED BY: <i>G. Goode</i>	
	DRILLING CONTRACTOR: <i>NA</i>		
	DRILL RIG TYPE: <i>NA</i>		
	DRILLER'S NAME: <i>NA</i>		
	SAMPLING METHODS: <i>Hand Auger</i>		
	STARTED TIME: <i>14:10</i>	DATE: <i>6/15/96</i>	
	COMPLETED TIME: <i>14:30</i>	DATE: <i>6/15/96</i>	
BORING DEPTH (ft.) <i>9'</i>			
CASING DEPTH (ft.) <i>NA</i>			
WATER DEPTH (ft.) <i>-</i>			

SAMPLE DEPTH	SAMPLER TYPE	BLOWS/6-IN.	INCHES DRIVEN	INCHES RECOVERED	MOISTURE	ODOR	UNFILTERED OVA (PPM)	FILTERED OVA (PPM)	CORRECTED OVA (PPM)	DEPTH IN FEET	USCS CODE	SOIL/SEDIMENT DESCRIPTION
1										1		
2	HA	-	-	-	dry	-	ND	NS	ND	2		
3										3	SP	Sand, light brown, fine to medium grained quartz, less than 5% fines, loose, dry
4	HA	-	-	-	dry	-	ND	NS	ND	4		
5										5		Sand, light brown, fine to medium grained quartz, trace of silt, loose, dry
6	HA	-	-	-	moist	-	ND	NS	ND	6		
7										7	SP	Sand, yellowish orange, fine to medium grained quartz, less than 5% fines, loose, moist
8	HA	-	-	-	wet	-	ND	NS	ND	8		
9										9	SP	Sand, light brown, fine to medium grained quartz, loose, wet at 8.5'

ND = NO ORGANIC VAPORS DETECTED  
NS = NO CARBON FILTERED SAMPLE READ

SOIL/SEDIMENT DESCRIPTION

## **APPENDIX F**

### **HEADSPACE METHODOLOGY FOR DETERMINING SOIL ORGANIC VAPOR CONCENTRATIONS**

## **HEADSPACE METHODOLOGY FOR DETERMINING SOIL ORGANIC VAPOR CONCENTRATION**

Soil headspace readings were obtained utilizing the following method which conforms to the requirements of Rule 62-770.200(2), FAC.

Two 16 ounce glass soil jars were half-filled with soil sample (duplicate samples). The soil jars were then sealed utilizing "mason jar" type open top screw on caps with foil in place of the conventional solid jar tops. The soil samples were allowed to equilibrate to ambient temperature which was within the FDEP temperature range.

The samples were tested with a Foxboro Century 128, an organic vapor analyzer (OVA) equipped with a flame ionization detector (FID). Prior to each day's activities, the OVA was field calibrated with 109 ppm methane in air, in accordance with the manufacturer's specifications. Sample testing was performed by inserting the OVA probe through the foil sample cover and recording the highest OVA reading. Following collection of this OVA reading, the OVA was fitted with a granular activated carbon filter probe. The OVA was then used to test the headspace above the duplicate sample. Carbon absorbs petroleum hydrocarbons and thus the filtered reading is assumed to represent naturally occurring organic vapors.

Upon completion of the screening exercise, the carbon filtered result was subtracted from the un-filtered result, to obtain a net petroleum vapor value. In accordance with Rule 17(62)-770.200(2), F.A.C., and Guidelines for Assessment and Remediation of Petroleum Contaminated Soil (May 1994) corrected headspace levels in excess of 500 ppm is defined as excessively contaminated soil for gasoline contaminated soil. Corrected headspace levels in excess of 10 ppm but less than 500 ppm are considered as contaminated, though not excessively contaminated.

**APPENDIX G**

**FIELD MEASUREMENTS AND SAMPLING FORMS**





Sampler(s): C. Brown

Facility Address: Coastal Systems Station PC4

SOP Cleaning	9	N
--------------	---	---

**Comments:**

GROUNDWATER SYSTEM PERFORMANCE AND QUALITY CONTROL SAMPLES											TEST PARAMETERS			
A	B	C	D	E	Sample ID	Time	Source	pH	Temp.	Sp. Cond.		Test Method	Container Type	Preserv. Type
							GWS Influent				A			
							GWS Effluent				B			
							Equipment Blank				C			
							Equipment Blank				D			
							Trip Blank				E			
							Duplicate ( )							
							Duplicate ( )							

[illegible]

NOTE: A 3x PURGE IS OK FOR: 4" = 1.96 / 6" = 4.41, PROVIDED 3 CONSISTENT REPEAT FIELD METER READINGS ARE OBSERVED







## SINGLE SAMPLE LOG SHEET

Page 1 of 1Project Site Name: CTD-0008 362Sample ID No.: 362-GW-PCY-362-4-001Project No.: 7113Sample Location: PCY-362-4

- ☐ Surface Soil  
☐ Subsurface Soil  
☐ Sediment  
☒ Other Groundwater  
☐ QA Sample Type: \_\_\_\_\_

Sampled By: C. Burgin

C.O.C. No.: \_\_\_\_\_

Sample Method:

Disposable Nylon Bailor

Depth Sampled:

8.66 To 14.70

Sample Date and Time:

7-12-96/1552

Type of Sample

- ☒ Grab  
☐ Composite  
☐ Grab-Composite  
☐ High Concentration  
☐ Low Concentration

## Composite Sample Data

Sample

Time

Color/Description

## Grab Sample Data

Color

Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis	Container Requirements	Collected (✓)	Map:
<u>605</u>	<u>40ml</u>	<u>✓</u>	
<u>607</u>	<u>40ml</u>	<u>✓</u>	
<u>504</u>	<u>125ml</u>	<u>✓</u>	
<u>239.2</u>	<u>500ml</u>	<u>✓</u>	

Observations/Notes:

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No:



## SINGLE SAMPLE LOG SHEET

Page 1 of 1Project Site Name: CTO-0004 362Sample ID No.: 362-6W-PCY-362-3-001Project No.: 7113Sample Location: PCY-362-3

- ☐ Surface Soil  
☐ Subsurface Soil  
☐ Sediment  
☒ Other Groundwater  
☐ QA Sample Type: \_\_\_\_\_

Sampled By: C. Buzan

C.O.C. No.: \_\_\_\_\_

Sample Method:

Disposable Teflon Bailer

## Composite Sample Data

Depth Sampled:

6.93 To 14.50

Sample Date and Time:

7-12-96 / 1545

Type of Sample

- ☒ Grab  
☐ Composite  
☐ Grab-Composite  
☐ High Concentration  
☐ Low Concentration

## Grab Sample Data

Color

Description: (Sand, Clay, Dry, Moist, Wet, etc.)

## Analysis

## Container Requirements

## Collected (✓)

Map:

60140ml

✓

60240ml

✓

504125ml

✓

239.2500ml

✓

Observations/Notes:

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No:



## SINGLE SAMPLE LOG SHEET

Page 1 of 1Project Site Name: CTO-0008  
362Sample ID No.: 362-GW-PCY-362-Z-001Project No.: 7113Sample Location: PCY-362-Z-001

- ☐ Surface Soil  
☐ Subsurface Soil  
☐ Sediment  
☒ Other Groundwater  
☐ QA Sample Type: \_\_\_\_\_

Sampled By: C. Burgin

C.O.C. No.: \_\_\_\_\_

Sample Method:

Disposable Teflon bailer

Depth Sampled:

7.20 To 14.85

Sample Date and Time:

7-12-96 / 1536

Type of Sample

- ☒ Grab  
☐ Composite  
☐ Grab-Composite  
☐ High Concentration  
☐ Low Concentration

## Composite Sample Data

Sample

Time

Color/Description

## Grab Sample Data

Color

Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis	Container Requirements	Collected (✓)	Map:
<u>601</u>	<u>40ml</u>	<u>✓</u>	
<u>602</u>	<u>40ml</u>	<u>✓</u>	
<u>504</u>	<u>125ml</u>	<u>✓</u>	
<u>238Z</u>	<u>500ml</u>	<u>✓</u>	

Observations/Notes:

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No:



## SINGLE SAMPLE LOG SHEET

Page 1 of 1Project Site Name: CTO-0008 362Sample ID No.: 362-GW-PCY-362-(1-00)Project No.: 7113Sample Location: PCY-362-1

- ☐ Surface Soil  
☐ Subsurface Soil  
☐ Sediment  
☒ Other Groundwater  
☐ QA Sample Type: \_\_\_\_\_

Sampled By: C. Ruggin

C.O.C. No.: \_\_\_\_\_

Sample Method:

Composite Sample Data

Disposable Teflon Bailor

Sample

Time

Color/Description

Depth Sampled:

8.40 to 14.80

Sample Date and Time:

7-12-96 / 1530

Type of Sample

- ☒ Grab  
☐ Composite  
☐ Grab-Composite  
☐ High Concentration  
☐ Low Concentration

Grab Sample Data

Color

Description: (Sand, Clay, Dry, Moist, Wet, etc.)

Analysis	Container Requirements	Collected <input checked="" type="checkbox"/>	Map:
<u>601</u>	<u>40ml</u>	<input checked="" type="checkbox"/>	
<u>602</u>	<u>40ml</u>	<input checked="" type="checkbox"/>	
<u>504</u>	<u>125ml</u>	<input checked="" type="checkbox"/>	
<u>239.2</u>	<u>500ml</u>	<input checked="" type="checkbox"/>	

Observations/Notes:

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No:

**APPENDIX H**

**GROUNDWATER LABORATORY DATA SHEETS**

**(Groundwater Samples Collected July 12, 1996)**

## GC PURGEABLE HALOCARBONS

000001

CASE NARRATIVE  
GC PURGEABLE HALOCARBONS

QAL Lab Reference No./SDG. MB368

Project: BROWN & ROOT COASTAL SYSTEMS STATION

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody included with this data package.

II. HOLDING TIMES

- A. Sample Preparation: Not applicable.
- B. Sample Analysis: All holding times were met.

III. METHOD

Preparation: N/A  
Cleanup: N/A  
Analysis: EPA 601 (MOD)

IV. PREPARATION

Not applicable.

V. ANALYSIS

- A. Calibration : All acceptance criteria were met.
- B. Blanks: All acceptance criteria were met.
- C. Surrogates: All acceptance criteria were met.
- D. Matrix Spikes: 2-Chloroethyl vinyl ether was outside acceptable limits for Accuracy (% Recovery) and Precision (RPD). However, analysis of a Laboratory Control Sample immediately after the matrix spikes indicated the analytical system was in control for the compounds found in the associated samples. Since MS/MSD results are subject to matrix effects, these values should be considered to be advisory.
- E. Samples: Sample analyses proceeded normally.

Primary analysis utilized a Restek Rtx 502.2 (105 meter x 0.53 mm) column. Confirmation analysis used a J&W Scientific DB-VRX (75 meter x 0.45 mm) column.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and QAL, Inc., both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED:

*for* Herb Kelly  
Organic Division Manager

DATE:

08-06-96

CASE NARRATIVE  
Addendum

Sample Information

<u>LAB</u> <u>SAMPLE ID</u>	<u>CLIENT</u> <u>SAMPLE ID</u>	<u>SAMPLE</u> <u>MATRIX</u>	<u>DATE</u> <u>SAMPLED</u>	<u>DATE</u> <u>EXTRACTED</u>	<u>DATE</u> <u>ANALYZED</u>	<u>SAMPLE</u> <u>pH<sup>1</sup></u>
MB368001	362-1	WATER	7/12/96	N/A	7/19/96	<2
MB368002	362-2	WATER	7/12/96	N/A	7/19/96	<2
MB368003	362-3	WATER	7/12/96	N/A	7/19/96	<2
MB368004	362-4	WATER	7/12/96	N/A	7/19/96	<2
MB368005	362-1B	WATER	7/12/96	N/A	7/19/96	<2
MB368006	TRIP BLANK	WATER	7/12/96	N/A	7/19/96	<2
WMV096G191	VBLK001	WATER	N/A	N/A	7/19/96	N/A

<sup>1</sup> Applies to samples designated for purgeable VOA analysis only.

CURRENT METHOD DETECTION LIMITS (MDLs)  
PURGEABLE HALOCARBONS

Date collected: N/A  
Date extracted: N/A  
Date analyzed: 3/13/96  
Matrix: Water  
Method: EPA601 (MOD)  
% Moisture: 100

Sample Group: LABQC  
Lab Sample ID: Multiple Samples  
Lab file 1 ID: N/A  
Lab file 2 ID: N/A  
Dilution factor: 1.0  
Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	0.093
75-25-2	Bromoform	1.0	0.142
74-83-9	Bromomethane	1.0	0.089
56-23-5	Carbon tetrachloride	1.0	0.090
108-90-7	Chlorobenzene	1.0	0.141
75-00-3	Chloroethane	1.0	0.101
110-75-8	2-Chloroethyl vinyl ether	1.0	0.100
67-66-3	Chloroform	1.0	0.086
74-87-3	Chloromethane	1.0	0.138
124-48-1	Dibromochloromethane	1.0	0.106
95-50-1	1,2-Dichlorobenzene	1.0	0.128
541-73-1	1,3-Dichlorobenzene	1.0	0.137
106-46-7	1,4-Dichlorobenzene	1.0	0.145
75-71-8	Dichlorodifluoromethane	1.0	0.181
75-34-3	1,1-Dichloroethane	1.0	0.079
107-06-2	1,2-Dichloroethane	1.0	0.089
75-35-4	1,1-Dichloroethene	1.0	0.138
156-59-2	cis-1,2-Dichloroethene	1.0	0.074
156-60-5	trans-1,2-Dichloroethene	1.0	0.066
78-87-5	1,2-Dichloropropane	1.0	0.097
10061-01-5	cis-1,3-Dichloropropene	1.0	0.095
10061-02-6	trans-1,3-Dichloropropene	1.0	0.113
75-09-2	Methylene chloride (Dichloromethane)	5.0	2.029
79-34-5	1,1,2,2-Tetrachlorethane	1.0	0.214
127-18-4	Tetrachloroethene	1.0	0.104
71-55-6	1,1,1-Trichloroethane	1.0	0.088
79-00-5	1,1,2-Trichloroethane	1.0	0.135
79-01-6	Trichloroethene	1.0	0.091
75-69-4	Trichlorofluoromethane	1.0	0.096
75-01-4	Vinyl chloride	1.0	0.160

*Just*

362-1

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: 7/12/96  
 Date extracted: N/A  
 Date analyzed: 7/19/96  
 Matrix: Water  
 Method: EPA601 (MOD)  
 % Moisture: 100

Sample Group: MB368  
 Lab Sample ID: MB368001  
 Lab file 1 ID: G19T003  
 Lab file 2 ID: G19U003  
 Dilution factor: 1.0  
 Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			109 % Rec.

362-2

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: 7/12/96	Sample Group: MB368
Date extracted: N/A	Lab Sample ID: MB368002
Date analyzed: 7/19/96	Lab file 1 ID: G19T004
Matrix: Water	Lab file 2 ID: G19U004
Method: EPA601 (MOD)	Dilution factor: 1.0
% Moisture: 100	Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			94 % Rec.

362-3

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected:	7/12/96	Sample Group:	MB368
Date extracted:	N/A	Lab Sample ID:	MB368003
Date analyzed:	7/19/96	Lab file 1 ID:	G19T005
Matrix:	Water	Lab file 2 ID:	G19U005
Method:	EPA601 (MOD)	Dilution factor:	1.0
% Moisture:	100	Reporting units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			90 % Rec.

362-4

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: 7/12/96  
 Date extracted: N/A  
 Date analyzed: 7/19/96  
 Matrix: Water  
 Method: EPA601 (MOD)  
 % Moisture: 100

Sample Group: MB368  
 Lab Sample ID: MB368004  
 Lab file 1 ID: G19T006  
 Lab file 2 ID: G19U006  
 Dilution factor: 1.0  
 Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			91 % Rec.

TRIP\_BLANK

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: 7/12/96  
 Date extracted: N/A  
 Date analyzed: 7/19/96  
 Matrix: Water  
 Method: EPA601 (MOD)  
 % Moisture: 100

Sample Group: MB368  
 Lab Sample ID: MB368006  
 Lab file 1 ID: G19T008  
 Lab file 2 ID: G19U008  
 Dilution factor: 1.0  
 Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			92 % Rec.

362-1B

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: 7/12/96  
 Date extracted: N/A  
 Date analyzed: 7/19/96  
 Matrix: Water  
 Method: EPA601 (MOD)  
 % Moisture: 100

Sample Group: MB368  
 Lab Sample ID: MB368005  
 Lab file 1 ID: G19T007  
 Lab file 2 ID: G19U007  
 Dilution factor: 1.0  
 Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	10
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			88 % Rec.

VBLK001

REPORT OF ANALYTICAL RESULTS  
PURGEABLE HALOCARBONS

Date collected: N/A  
 Date extracted: N/A  
 Date analyzed: 7/19/96  
 Matrix: Water  
 Method: EPA601 (MOD)  
 % Moisture: 100

Sample Group: LABQC  
 Lab Sample ID: WMV096G191  
 Lab file 1 ID: G19T002  
 Lab file 2 ID: G19U002  
 Dilution factor: 1.0  
 Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
110-75-8	2-Chloroethyl vinyl ether	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
75-09-2	Methylene chloride (Dichloromethane)	5.0	U
79-34-5	1,1,2,2-Tetrachlorethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			103 % Rec.



## GC PURGEABLE AROMATICS

000126

CASE NARRATIVE  
GC PURGEABLE AROMATICS

QAL Lab Reference No./SDG. MB368

Project: BROWN & ROOT COASTAL SYSTEMS STATION

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody included with this data package.

II. HOLDING TIMES

- A. Sample Preparation: Not applicable.
- B. Sample Analysis: All holding times were met.

III. METHOD

Preparation: N/A  
Cleanup: N/A  
Analysis: EPA 602 (MOD)

IV. PREPARATION

Not applicable.

V. ANALYSIS

- A. Calibration : All acceptance criteria were met.
- B. Blanks: All acceptance criteria were met.
- C. Surrogates: All acceptance criteria were met.
- D. Matrix Spikes: All acceptance criteria were met.
- E. Samples: Sample analyses proceeded normally.

Primary analysis utilized a Restek Rtx 502.2 (105 meter x 0.53 mm) column. Confirmation analysis used a J&W Scientific DB-VRX (75 meter x 0.45 mm) column.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and QAL, Inc., both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED: *for* Herb Kelly

Herb Kelly  
Organic Division Manager

DATE: 08-06-96

CASE NARRATIVE  
Addendum

Sample Information

<u>LAB</u> <u>SAMPLE ID</u>	<u>CLIENT</u> <u>SAMPLE ID</u>	<u>SAMPLE</u> <u>MATRIX</u>	<u>DATE</u> <u>SAMPLED</u>	<u>DATE</u> <u>EXTRACTED</u>	<u>DATE</u> <u>ANALYZED</u>	<u>SAMPLE</u> <u>pH<sup>1</sup></u>
MB368001	362-1	WATER	7/12/96	N/A	7/19/96	<2
MB368002	362-2	WATER	7/12/96	N/A	7/19/96	<2
MB368003	362-3	WATER	7/12/96	N/A	7/19/96	<2
MB368004	362-4	WATER	7/12/96	N/A	7/19/96	<2
MB368005	362-1B	WATER	7/12/96	N/A	7/19/96	<2
MB368006	TRIP BLANK	WATER	7/12/96	N/A	7/19/96	<2
WMV096G191	VLK001	WATER	N/A	N/A	7/19/96	N/A

<sup>1</sup> Applies to samples designated for purgeable VOA analysis only.

CURRENT METHOD DETECTION LIMITS (MDLs)  
PURGEABLE AROMATICS

Date collected:	N/A	Sample Group:	LABQC
Date extracted:	N/A	Lab Sample ID:	Multiple Samples
Date analyzed:	3/13/96	Lab file 1 ID:	N/A
Matrix:	Water	Lab file 2 ID:	N/A
Method:	EPA602 (MOD)	Dilution factor:	1.0
% Moisture:	100	Reporting units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	0.102
108-90-7	Chlorobenzene	1.0	0.141
95-50-1	1,2-Dichlorobenzene	1.0	0.128
541-73-1	1,3-Dichlorobenzene	1.0	0.137
106-46-7	1,4-Dichlorobenzene	1.0	0.145
100-41-4	Ethylbenzene	1.0	0.129
1634-04-4	tert-butyl methyl ether	1.0	0.087
108-88-3	Toluene	1.0	0.102
108-38-3/106-42-3	m-, p-Xylene	2.0	0.312
95-47-6	o-Xylene	1.0	0.189

362-1

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected: 7/12/96  
Date extracted: N/A  
Date analyzed: 7/19/96  
Matrix: Water  
Method: EPA602 (MOD)  
% Moisture: 100

Sample Group: MB368  
Lab Sample ID: MB368001  
Lab file 1 ID: G19T003  
Lab file 2 ID: G19U003  
Dilution factor: 1.0  
Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			109 % Rec.

362-2

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected:	7/12/96	Sample Group:	MB368
Date extracted:	N/A	Lab Sample ID:	MB368002
Date analyzed:	7/19/96	Lab file 1 ID:	G19T004
Matrix:	Water	Lab file 2 ID:	G19U004
Method:	EPA602 (MOD)	Dilution factor:	1.0
% Moisture:	100	Reporting units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			94 % Rec.

362-3

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected: 7/12/96  
Date extracted: N/A  
Date analyzed: 7/19/96  
Matrix: Water  
Method: EPA602 (MOD)  
% Moisture: 100

Sample Group: MB368  
Lab Sample ID: MB368003  
Lab file 1 ID: G19T005  
Lab file 2 ID: G19U005  
Dilution factor: 1.0  
Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			90 % Rec.

362-4

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected:	7/12/96	Sample Group:	MB368
Date extracted:	N/A	Lab Sample ID:	MB368004
Date analyzed:	7/19/96	Lab file 1 ID:	G19T006
Matrix:	Water	Lab file 2 ID:	G19U006
Method:	EPA602 (MOD)	Dilution factor:	1.0
% Moisture:	100	Reporting units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			91 % Rec.

362-1B

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected: 7/12/96  
Date extracted: N/A  
Date analyzed: 7/19/96  
Matrix: Water  
Method: EPA602 (MOD)  
% Moisture: 100

Sample Group: MB368  
Lab Sample ID: MB368005  
Lab file 1 ID: G19T007  
Lab file 2 ID: G19U007  
Dilution factor: 1.0  
Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	1.3
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	1.3
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			88 % Rec.

TRIP\_BLANK

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected: 7/12/96  
Date extracted: N/A  
Date analyzed: 7/19/96  
Matrix: Water  
Method: EPA602 (MOD)  
% Moisture: 100

Sample Group: MB368  
Lab Sample ID: MB368006  
Lab file 1 ID: G19T008  
Lab file 2 ID: G19U008  
Dilution factor: 1.0  
Reporting units: ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			92 % Rec.

VBLK001

REPORT OF ANALYTICAL RESULTS  
PURGEABLE AROMATICS

Date collected:	N/A	Sample Group:	LABQC
Date extracted:	N/A	Lab Sample ID:	WMV096G191
Date analyzed:	7/19/96	Lab file 1 ID:	G19T002
Matrix:	Water	Lab file 2 ID:	G19U002
Method:	EPA602 (MOD)	Dilution factor:	1.0
% Moisture:	100	Reporting units:	ug/L

CAS NUMBER	COMPOUND NAME	REPORTING LIMIT	RESULT
71-43-2	Benzene	1.0	U
108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U
1330-20-7	Xylenes (Total)	1.0	U
N/A	Total Volatile Organic Aromatics	1.0	U
1634-04-4	Methyl-tert-butyl ether	1.0	U
SURROGATE-Fluorobenzene (QC Limits - 61-133%)			103 % Rec.

**GC EXTRACTABLE VOLATILE ORGANICS  
(EDB)**

000247

CASE NARRATIVE  
GC EXTRACTABLE VOLATILE ORGANICS (EDB)

QAL Lab Reference No./SDG. MB368

Project: Brown & Root Coastal Systems Station

I. RECEIPT

No exceptions were encountered unless a Sample Receipt Exception Report is attached to the Chain-of-Custody included with this data package.

II. HOLDING TIMES

A. Sample Preparation: All holding times were met.

B. Sample Analysis: All holding times were met.

III. METHOD

Preparation: N/A

Cleanup: N/A

Analysis: EPA 504.1

IV. PREPARATION

Sample preparation proceeded normally.

V. ANALYSIS

A. Calibration: All acceptance criteria were met.

B. Blanks: All acceptance criteria were met.

C. Surrogates: All acceptance criteria were met.

D. Spikes: These water samples have been referenced to QC from another laboratory contract. The native sample, matrix spike, and matrix spike duplicate will be reported with the results of our laboratory contract number MB370 (MB370003MS and MB370003MSD).

E. Samples: Sample analysis proceeded normally.

A summary of current applicable method detection limits (MDLs) immediately follows this case narrative.

GC EXTRACTABLE VOLATILE ORGANICS (EDB)

Lab Reference No./SDG: MB368

Page 2 ..

I certify that this data package is in compliance with the terms and conditions agreed to by the client and QAL, Inc., both technically and for completeness except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

SIGNED: Tammy Carey  
Tammy Carey  
Chemist

DATE: 7/31/96

## CASE NARRATIVE

## Addendum

## Sample Information

LAB	CLIENT	SAMPLE	DATE	DATE	DATE	SAMPLE
<u>SAMPLE ID</u>	<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>SAMPLED</u>	<u>EXTRACTED</u>	<u>ANALYZED</u>	<u>pH</u> <sup>1</sup>
MB368001	362-1	WATER	07/12/96	07/29/96	07/29/96	N/A
MB368002	362-2	WATER	07/12/96	07/29/96	07/29/96	N/A
MB368003	362-3	WATER	07/12/96	07/29/96	07/29/96	N/A
MB368004	362-4	WATER	07/12/96	07/29/96	07/29/96	N/A
MB368005	362-1B	WATER	07/12/96	07/29/96	07/29/96	N/A
W07296B1	QC BLANK	WATER	N/A	07/29/96	07/29/96	N/A

<sup>1</sup> Applies to samples designated for purgeable VOA analysis only.

ORGANICS ANALYSIS METHOD DETECTION LIMITS

GC EXTRACTABLE VOLATILE ORGANICS (EDB)

Laboratory Name: CH2M HILL Sample Matrix: WATER  
Analytical Method: 504.1

<u>CAS Number</u>	<u>Compound</u>	<u>MDL</u> <u>ug/L</u>
106-93-4	1,2-Dibromoethane (EDB)	0.003

# ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL Concentration: LOW Date Extracted: 07/29/96  
Lab Sample ID: MB368001 Sample Matrix: WATER Date Analyzed: 07/29/96  
Client Sample ID: 362-1 Percent Moisture: \_\_\_\_\_ Dilution Factor: 1.0

## GC EXTRACTABLE VOLATILE ORGANICS (EDB)

CAS Number	ug/L
106-93-4 1,2-Dibromoethane (EDB)	0.02 U

1,1,2,2-Tetrachloroethane - SS 90

- U - Analyzed for but not detected.  
B - Detected in QC blank.  
J - Detected, concentration estimated.  
SS - Surrogate Standard reported as percent recovery.

**Comments:**

Form I

# ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL Concentration: LOW Date Extracted: 07/29/96  
 Lab Sample ID: MB368002 Sample Matrix: WATER Date Analyzed: 07/29/96  
 Client Sample ID: 362-2 Percent Moisture:        Dilution Factor: 1.0

## GC EXTRACTABLE VOLATILE ORGANICS (EDB)

CAS Number ug/L  
 106-93-4 1,2-Dibromoethane (EDB) . . . 0.02 U

1,1,2,2-Tetrachloroethane - SS 93

- U - Analyzed for but not detected.
- B - Detected in QC blank.
- J - Detected, concentration estimated.
- SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

# ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	<u>CH2M HILL</u>	Concentration:	<u>LOW</u>	Date Extracted:	<u>07/29/96</u>
Lab Sample ID:	<u>MB368003</u>	Sample Matrix:	<u>WATER</u>	Date Analyzed:	<u>07/29/96</u>
Client Sample ID:	<u>362-3</u>	Percent Moisture:	<u>          </u>	Dilution Factor:	<u>1.0</u>

## GC EXTRACTABLE VOLATILE ORGANICS (EDB)

CAS Number	ug/L
106-93-4 1,2-Dibromoethane (EDB)	0.02 U

1,1,2,2-Tetrachloroethane - SS 90

- U - Analyzed for but not detected.  
B - Detected in QC blank.  
J - Detected, concentration estimated.  
SS - Surrogate Standard reported as percent recovery.

**Comments:**

Form I

# ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL Concentration: LOW Date Extracted: 07/29/96  
Lab Sample ID: MB368004 Sample Matrix: WATER Date Analyzed: 07/29/96  
Client Sample ID: 362-4 Percent Moisture: \_\_\_\_\_ Dilution Factor: 1.0

## GC EXTRACTABLE VOLATILE ORGANICS (EDB)

CAS Number	ug/L
106-93-4 1,2-Dibromoethane (EDB)	0.02 U

1,1,2,2-Tetrachloroethane - SS 89

- U - Analyzed for but not detected.  
B - Detected in QC blank.  
J - Detected, concentration estimated.  
SS - Surrogate Standard reported as percent recovery.

**Comments:**

Form I

Laboratory Name:	<u>CH2M HILL</u>	Concentration:..	<u>LOW</u>	Date Extracted:	<u>07/29/96</u>
Lab Sample ID:	<u>MB368005</u>	Sample Matrix:	<u>WATER</u>	Date Analyzed:	<u>07/29/96</u>
Client Sample ID:	<u>362-1B</u>	Percent Moisture:	<u>          </u>	Dilution Factor:	<u>1.0</u>

CAS Number	ug/L
106-93-4 1,2-Dibromoethane (EDB)	0.02 U

U - Analyzed for but not detected.  
B - Detected in QC blank.  
J - Detected, concentration estimated.  
SS - Surrogate Standard reported as percent recovery.

(334) 271-2440  
Fax No. (334) 271-3528  
000265

## ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL  
Lab Sample ID: W07296B1  
Client Sample ID: QC BLANK

Concentration: LOW  
Sample Matrix: WATER  
Percent Moisture: \_\_\_\_\_

Date Extracted: 07/29/96  
Date Analyzed: 07/29/96  
Dilution Factor: 1.0

## GC EXTRACTABLE VOLATILE ORGANICS (EDB)

CAS Number	ug/L
106-93-4 1,2-Dibromoethane (EDB)	0.02 U

1,1,2,2-Tetrachloroethane - SS 93

- U - Analyzed for but not detected.  
B - Detected in QC blank.  
J - Detected, concentration estimated.  
SS - Surrogate Standard reported as percent recovery.

**Comments :**

Form I

CASE NARRATIVE  
Cations

Laboratory: CH2M HILL Lab Ref. No.: MB368

Client/Project: Brown & Root Coastal Systems Station

- I. Holding Time:  
All holding times were met.
- II. Digestion Exceptions:  
None.
- III. Analysis:
- A. Calibration:  
All acceptance criteria were met.
- B. Blanks:  
All acceptance criteria were met.
- C. ICP Interference Check Sample:  
All acceptance criteria were met.
- D. Spike Sample(s):  
Prespike and postspike recoveries outside criteria are flagged accordingly.
- E. Duplicate Sample(s):  
All acceptance criteria were met.
- F. Laboratory Control Sample(s):  
All acceptance criteria were met.
- G. ICP Serial Dilution:  
N/A
- H. Other:  
None.
- IV. Receipt Exceptions:  
Any receipt exception will be addressed in a Sample Receipt Exception Report which will be attached to the Chain-of-Custody in this package.
- V. Documentation Exceptions:  
None.
- VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and Quality Analytical Laboratories, Inc., both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

SIGNED: Kaye Walker DATE: 8/1/96  
Kaye Walker  
Inorganic Division Manager

000002

1

INORGANIC ANALYSES DATA SHEET

362-1

1  
INORGANIC ANALYSES DATA SHEET

362-2

1

INORGANIC ANALYSES DATA SHEET

362-3

1

INORGANIC ANALYSES DATA SHEET

362-4

000309

1

INORGANIC ANALYSES DATA SHEET

362-1B



# Sample Receipt Exceptions Report

Batch Number: MB 368

Origination date: 7/13

Client/Project: Brown + Root Environmental

## SUMMARY OF EXCEPTION (check one if it applies)

✓	Description of exception	Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by the project.	Sample ID 362-GW-PCY-362-2-001 C0C
	2. No chain-of-custody provided.	listed nine containers, but only eight
	3. Chain-of-custody provided but incomplete.	were sent. One 504 EDB container is missing
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested.	
	6. Container inappropriate for analysis requested.	
	7. Inadequate sample volume for analysis requested.	
	8. Preservation inappropriate for analysis requested.	
	9. Samples received out of holding time for analysis requested.	
	10. Samples received more than 72 hours after sampling.	
	11. Discrepancies between chain-of-custody and container labels.	
✓	12. Other (describe on right)	

## FRACTION(S) AFFECTED (specify which fraction was affected by the exceptions detailed above by writing the number of the exception next to it)

Unpreserved	<input type="text"/>	Nutrients	<input type="text"/>	Metals	<input type="text"/>	Volatiles	<input type="text"/>
Cyanide	<input type="text"/>	Extractables	<input type="text"/>	Extractables	<input type="text"/>	Other (specify)	<input type="text"/>

## ACTION TAKEN:

Originator: David Shire

Supervisor: \_\_\_\_\_

Client was notified on: 7/15  
(DATE/TIME)

Client contact: Terry Bosche

Client's comments: proceed w/analyses

Client Services: RAM

QA officer: \_\_\_\_\_